

**ASSIGNMENT PAGE**

**RESOURCE CONSERVATION AND RECOVERY ACT  
HAZARDOUS WASTE MANAGEMENT PERMIT  
DOCUMENT**

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## **USERS GUIDE TO THE RCRA HAZARDOUS WASTE MANAGEMENT PERMIT**

The RCRA hazardous waste permit issued to the Paducah Gaseous Diffusion Plant in 1991 is comprised of two parts. The first part is issued by the Kentucky Division of Waste Management (KDWM) is called the Hazardous Waste Management Permit and consists of five volumes. The second part is the Hazardous and Solid Waste Amendments (HSWA) Permit issued by the Environmental Protection Agency and consists of one volume. The full RCRA permit consists of both the KDWM portion and the EPA portion. For purposes of implementing working, usable, up-to-date controlled copies, the permit is divided into six volumes.

- Volume One - KDWM Permit Conditions and Authority
- Volume Two - Attachments I - IX
- Volume Three - Appendix B and Appendix C Drawings
- Volume Four - Appendix C Drawings continued
- Volume Five - Appendix D and Appendix E
- Volume Six - HSWA Permit

Modifications to the hazardous waste permit have occurred to both the KDWM portion and the EPA portion of the permit. Since the KDWM portion of the hazardous waste management permit covers corrective actions, treatment, storage, and disposal of hazardous waste, and the EPA portion covers corrective action, modifications have occurred that have affected only the KDWM section. Therefore, modification numbers do not correspond between the EPA's portion and KDWM's portion. Modifications to the hazardous waste permit are summarized in Table 1.0.

Where possible, modified or revised sections of the permit have been incorporated into the appropriate volume. If a section was modified and the change could not physically be inserted, a notation is made by the side of the condition affected as to the date modified and which modification to review for the correct language. Modifications are located in the front of Volumes One and Volumes Six and are specific to the KDWM portions or the EPA portion, respectively.

**TABLE 1.0**

<b>EPA HSWA Modification #</b>	<b>KDWM Modification #</b>	<b>Date of Issuance</b>	<b>Modification Type</b>	<b>Main Subject of Modification</b>
	1	February 3, 1992	Minor	Correct typographical errors and grant interim compliance extension.
	2	September 30, 1992	Major	Post-closure of the C-404 low-level radioactive waste landfill; revise management procedures, personnel training programs, and inspections schedules.
1	3	August 4, 1992	Minor	Revise RCRA Facility Investigation (RFI) Workplan Schedule
2	4	March 11, 1993	Minor	Change groundwater monitoring methods, frequency and reporting dates; add several Solid Waste management Units and Waste Area Groupings; revise compliance schedules.
3	5	June 30, 1993	Minor	Add United States Enrichment Corporation (USEC) as co-operator.
	6	February 1, 1994	Minor	Extend compliance schedule for RFI Workplan
4*	7	March 30, 1995	Major	Allow wastes generated at PGDP to be accepted back on site; withdraw treatment units that were never used; construct a hazardous waste storage building; consolidate quarterly reports into one, and add several SWMUs to RFI list. *(The HSWA modification only addressed consolidating the quarterly reports into one.)
	8	June 26, 1995	Major	Require submittal of final report for interim corrective measures, remedial design and describe remedial action and schedule.

<b>EPA HSWA Modification #</b>	<b>KDWM Modification #</b>	<b>Date of Issuance</b>	<b>Modification Type</b>	<b>Main Subject of Modification</b>
	9	August 30, 1995	Minor	Revises interim corrective measures for the Northeast Plume; Reduces number of sampling aliquots from the C-404 landfill.
5*	10	March 4, 1996	Major	Removes USEC as co-operator from the permit, changes name of Martin Marietta to Lockheed Martin, approves "no further action" for seven SWMU's, changes corrective measures workplan to corrective measures study. *The HSWA modification only removed USEC as cooperator. This was effective September 5, 1997.
	11	May 7, 1996	Minor	Incorporates six new waste codes, revises Attachment II "General Waste Handling Procedures, and other administrative changes.
	12	January 17, 1997	Major	Incorporates previous modification language, removes closed units, and updates/revises Attachments I-IX, where necessary.
	13	September 26, 1997	Major	Corrects text previously approved in Modification 12, revises Attachment IX remedial actions, and other corrections to text.
6*	14	April 1, 1998	Major	Changes Cooperator on permit from Lockheed Martin Energy Systems, Inc. to Bechtel Jacobs Company, LLC. Approves Revision 8 of the Contingency Plan.
	15	August 23, 1999	Major	Allows stabilization in containers to occur, removes C-746-R from permit, updates Appendix A, B, C, D, revises numerous attachments.

\* Minor Modification by EPA.



Kentucky Natural Resources and Environmental Protection Cabinet  
Department for Environmental Protection  
Division of Waste Management

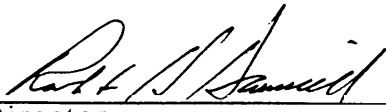
**HAZARDOUS WASTE MANAGEMENT  
PERMIT MODIFICATION ISSUED TO:**

United States Department of Energy, Paducah Gaseous Diffusion Plant, and  
Bechtel Jacobs Company, L.L.C.  
5600 Hobbs Road  
Paducah, Kentucky 42001  
EPA I.D. #KY8-890-008-982

The Division of Waste Management hereby grants the above-named facility a permit modification to incorporate the modification(s) specified below in its hazardous waste facility permit. This permit modification has been issued under the provision of KRS Chapter 224 and 401 KAR 38:040, Section 2, effective March 12, 1997, and is subject to all conditions and operating limitations contained herein. Issuance of this permit modification does not relieve the permittee from the responsibility of obtaining any other permits, licenses, or approvals required by this Cabinet and/or other federal, state, and local agencies.

ISSUE DATE: July 20, 1999  
EFFECTIVE DATE: August 20, 1999  
EXPIRATION DATE: August 19, 2001  
MODIFICATION: #15

<u>ITEM NO:</u>	<u>PERMIT CONDITION (ATTACHMENT)</u>	<u>LOCATION IN PERMIT</u>	<u>COMMENTS</u>
1	Permit Condition II.A. 1	Behind the Title Page	Revised
2	TABLE I	Behind the Title Page	Revised
3	TABLE II	Behind the Title Page	Revised
4	Permit Condition II.G. 1	Behind the Title Page	Revised
5	Permit Condition 11.19	Behind the Title Page	Revised

  
\_\_\_\_\_  
Director  
Division of Waste Management

  
\_\_\_\_\_  
Commissioner  
Department for Environmental Protection



<u>ITEM NO:</u>	<u>PERMIT CONDITION (ATTACHMENT)</u>	<u>LOCATION IN PERMIT</u>	<u>COMMENTS</u>
6	Permit Condition II.G. 1	Behind the Title Page	Revised
7	Permit Condition II.G. 1	Behind the Title Page	Revised
8	Permit Condition IV.D.3.b	Behind the Title Page	Revised
9	Permit Condition IV.F.3.a	Behind the Title Page	Revised
10	Appendix A	Behind the Title Page	Revised
11	Appendix D	Behind the Title Page	Revised
12	Attachment II	Behind the Title Page	Revised
13	Attachment III	Behind the Title Page	Revised
14	Attachment IV	Behind the Title Page	Revised

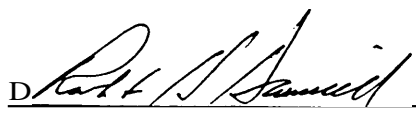
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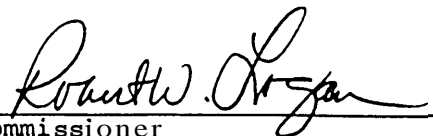
  
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<u>ITEM NO:</u>	<u>PERMIT CONDITION (ATTACHMENT)</u>	<u>LOCATION IN PERMIT</u>	<u>COMMENTS</u>
15	Attachment V	Behind the Title Page	Revised
16	Attachment VI	Behind the Title Page	Revised
17	Attachment VII	Behind the Title Page	Revised
18	Attachment VIII	Behind the Title Page	Revised
19	Attachment IX	Behind the Title Page	Revised

No deviation from the plans and specifications submitted with your application or the conditions specified herein is allowed, unless authorized in writing from the Division of Waste Management. Violation of the **terms** and conditions specified herein shall render this permit modification null and void. All rights of inspection by representatives of the Division of Waste Management are reserved. Conformance with all applicable Waste Management Regulations is the responsibility of the permittee.

  
\_\_\_\_\_  
Division of Waste Management

  
\_\_\_\_\_  
Commissioner  
Department for Environmental Protection

Issued this 20TH day of July 1999

**U.S. DEPARTMENT OF ENERGY  
AND BECHTEL JACOBS COMPANY L.L.C.  
PADUCAH GASEOUS DIFFUSION PLANT  
PERMIT MODIFICATION #15  
KY8-890-008-982**

The following conditions are being proposed to be amended to read as follows. Italics indicate changes to the permit conditions.

ITEM #1      Permit Condition II.A.1 has been revised to read as follows:

II.A. 1      This permit is issued for treatment, storage, and post-closure of hazardous waste at the **U.S.** Department of Energy's Paducah Gaseous Diffusion Plant, Paducah, Kentucky and Bechtel Jacobs Company L.L.C. (hereinafter referred to as the "facility") [401 KAR 34:010, Section 1]. Storage takes place in four (4) storage tanks, and drum storage consists of four (4) container storage areas. " Treatment of fluorescent/miscellaneous lamps occurs at C-746-A Hazardous and Mixed Waste Storage **Area** and the C-746-Q Hazardous Waste Storage Area. Treatment by neutralization, precipitation, oxidation, reduction, stabilization, or a combination thereof, occurs at the C-752-A Environmental Restoration Waste Storage Area and the C-746-Q Hazardous Waste Storage **Area.**"

ITEM #2      Table I (Tanks) has been revised to read as follows:

ITEM #4 Permit Condition II.G.1 has been revised to read **as** follows:

II.G.1 Closure Performance Standards. Pursuant to 401 KAR 30:020, Section 2(2)(b), the Permittee is granted a variance from the requirements of 401 KAR 34:070. Debris, as defined in 40 CFR 268.3(g), from the following units may be treated at the time of closure in accordance with 40 CFR 268.45:

C-733 Hazardous Waste Storage Area  
C-746-A Hazardous and Mixed Waste Storage and Treatment Area  
C-746-Q Hazardous Waste Storage and Treatment Area  
C-752-A Environmental Restoration Waste Storage Area

Debris that is treated in compliance with 40 CFR 268.45 and which does not exhibit a characteristic of hazardous waste identified in 401 KAR 31:030 may be managed as a solid waste.

ITEM #5 Permit Condition II.I.9 has been revised to read **as** follows:

II.I.9 Pressure Relief Devices. The Permittee may install pressure relief devices within the bungs of containers to allow venting of gases or vapors which may cause the container to rupture or burst **and** presents a health and safety concern. The Permittee shall maintain and inspect venting devices. All venting devices shall be fitted with appropriate filter(s) which shall remove or reduce hazardous constituents from released gases. Pressure relief devices may be installed on the containers which store the following **types** of hazardous wastes:

- o Tri-2-ethyl hexyl phosphate (TEHP) from laboratory operations
- o UF, rust sludge **from** drum washing activities
- o Alumigold
- o Acidic Wastes

II.I.9.b If the Permittee determines that a container poses an imminent and substantial endangerment and may rupture or burst due to an accumulation of compressed gases, the Permittee may request, orally or written, approval to install a venting device on the container(s). A written approval or denial by the Director for installation of a venting device on container(s) shall follow the Permittee request within seven (7) days.

**ITEM #6**

Permit Condition II.G. 1 has been revised to read as follows:

**II.J. 1.d**

The Permittee shall submit a plan to the Director for installation of any replacement monitoring wells. The plan shall be submitted within thirty (30) days from the date the replacement well is proposed to be installed. The plan shall consist of the following items:

1. Exact location(s) of each proposed monitoring well(s).
2. Methods and equipment which will be used to install the proposed monitoring well(s).
3. Materials and construction details of each monitoring well.
4. The proposed methods for developing newly installed wells.
5. Schedules for installation and development. .

Revised condition to include items previously listed in condition II.J. 1.h of the permit. Conditions II.J.f, g & h were previously deleted from the permit. Conditions II.J. 1.f & g no longer apply.

**ITEM #7** Permit Condition II.J.7.d has been revised to read **as** follows:

**II.J.7.d** The Permittee shall submit annual groundwater flow rate and direction by November 15 of each year of the post-closure period **as** specified in Condition II.J.6.c of this permit.

**ITEM #8** Permit Condition IV.D.3.b has been revised to read **as** follows:

**IV.D.3.b** The Permittee shall prepare and submit to the Director a draft and final RFI Reports for the investigations conducted pursuant to the Workplan(s) submitted under Condition IV.D.1. The draft RFI report(s) shall be submitted to the Director for review in accordance with the schedule in the approved RFI Workplan(s). The final RFI report(s) shall be submitted to the Director within sixty (60) calendar days of receipt of the Director's comments on the draft RFI report. The RFI report(s) shall include an analysis and summary of all required investigations of SWMUs and AOCs and summary of all required investigations of SWMUs and AOCs and their results. The summary shall describe the type and extent of contamination at the facility, including sources and migration pathways, and a description of actual or potential receptors. The report(s) shall also describe the extent of contamination (qualitative/quantitative) in relation to background levels indicative of the area. The objective of this task shall be to ensure that the investigation data are sufficient in quality (e.g., quality assurance procedures have been followed) and quantity to describe the nature and extent of contamination, potential threat to human health and/or the environment, and to support a Corrective Measures Study, if necessary.

**ITEM #9** Permit Condition IV.F.3.a has been revised to read **as** follows:

**IV.F.3.a** The Permittee shall prepare and submit to the Director a draft and final CMS report for the study conducted pursuant to the approved CMS. The draft CMS report shall be submitted to the Director in accordance with the schedule defined in the approved CMS. The final CMS report shall be submitted to the Director within sixty (60) days of receipt of the Director's comments on the draft CMS report. The CMS report shall summarize any bench-scale or pilot tests conducted. The CMS report must include an evaluation of each remedial alternative. The CMS report shall present all information gathered under the approved CMS. The CMS final report must contain adequate information to support the Director's decision on the recommended remedy, described under Permit Condition IV.G.

**KENTUCKY DIVISION OF WASTE MANAGEMENT  
MINOR MODIFICATION #14  
HAZARDOUS WASTE MANAGEMENT PERMIT ISSUED TO:**

U.S. DEPARTMENT OF ENERGY AND  
BECHTEL JACOBS COMPANY L.L.C.  
PADUCAH GASEOUS DIFFUSION PLANT  
KY8-890-008-982

ISSUE DATE: April 1,1998  
EFFECTIVE DATE: April 1,1998  
MODIFICATION: #14  
MODIFICATION FEE: N/A

Item Number	Permit Conditions or Attachments	Proposed Changes
1	PART I – Legal Authority	Insertion of Bechtel Jacobs Company L.L.C. and deletion of Lockheed Martin Energy Systems Inc.
2	PART II – Specific Conditions	Insertion of Bechtel Jacobs Company L.L.C. and deletion of Lockheed Martin Energy Systems Inc.
3	Attachment VII	Insertion of Bechtel Jacobs Company L.L.C. and deletion of Lockheed Martin Energy Systems Inc. from the Contingency Plan.

**This** modification is hereby approved under the provisions of 401 KAR 38:040, Section 3(3).



Robert H. Daniell, Director  
Kentucky Division of Waste Management

**KENTUCKY DIVISION OF WASTE MANAGEMENT  
MAJOR MODIFICATION #13  
HAZARDOUS WASTE MANAGEMENT PERMIT ISSUED TO:**

U.S. DEPARTMENT OF ENERGY AND  
LOCKHEED MARTIN ENERGY SYSTEMS, INC.  
PADUCAH GASEOUS DIFFUSION PLANT  
KY8-890-008-982

ISSUE DATE: September 26, 1997  
EFFECTIVE DATE: September 26, 1997  
MODIFICATION: #13  
MODIFICATION FEE: N/A

Item Number	Permit Conditions or Attachments	Modifications
1	<del>Part</del> 11, Page 27- 29 Table I Tanks	<del>Tank</del> # 8, previously approved for deletion has been removed from the permit.
2	<del>Part</del> III, E. 10, Page 58	The following sentence is added; <i>Activities within solid waste management units that are subject to notification must be approved by the Director prior to implementation.</i> The last sentence of the paragraph is changed to read; <i>Notification and approval</i> shall not be required forth following activities.
3	<del>Part</del> IV, J. 1, Page 70	The first sentence is changed to read; <i>Activities within SWMUs that are subject to notification, as specified by Condition III.E.10 and associatea</i> plans and schedules shall be subject to approval by the Director prior to implementation.
	<del>Part</del> IV, J.5, Page 70	The DOE should submit seven copies of reports and plans to the Division.
4	Appendix A: List Appendix A-1a	Congruent with the Statement of Basis and the CERCLA Record of Decision for Waste Area Group 17, the following <b>AOCs</b> are moved from List A-1(a) (SWMU or AOCs requiring an RFI) to List A-2 (SWMUs or AOCs needing no further action at this time); AOCs 103, 104, 110, 111, 112, 114, 115, 116, 117, 118, 119, 120, 121, 123, 124, 125, 126, 127, 128, 146, 147, 149, 150, 151, 152, 184, and 197. All of the above <b>AOC</b> are concrete rubbles piles.
5	Appendix A: List Appendix A- 1a	New SWMU 205, (Eastern Portion of the Yellow Water Line) is assigned to Appendix List A- 1(a).

Item Number	Permit Conditions or Attachments	Modifications
6	Appendix A: List Appendix A-2	New SWMU <b>206</b> (Toxic Substances Control Act Waste Storage Building, <b>U-753-A</b> ) and <b>208</b> (Contained Landfill, <b>U-746-U</b> ) are assigned to Appendix List A-2 with annotations. <b>SWMUs 46</b> (Hazardous Waste Pilot Plant, <b>C-409</b> ), SWMU <b>49</b> (Waste Solution Storage <b>Tank</b> , <b>C-400-B</b> ) and SWMU 50 (Nickel Stripper Evaporation Tank, C-400-C) were previously closed and have been moved from List A-3 to List <b>A-2</b> .
7	Appendix A: List Appendix <b>A-3</b>	New SWMU 207, (Environmental Restoration Waste Storage Building, C-752-A) is assigned to Appendix List <b>A-3</b> . As written above SWMU <b>46, 49</b> and <b>50</b> have been removed from List <b>A-3</b>
8	Appendix A: List Appendix A-5	<p>Congruent with the Statement of Basis and the CERCLA Record of Decision for WAG <b>17</b> the following changes have been made; the remaining <b>AOCs</b> of <b>WAG 17</b> not moved from A-1(a) to list <b>A-2</b> (see Item <b>4</b>) have been reassigned as follows: <b>AOCs 93, 105, 106, 107, 109, 113, 175</b> have been move to WAG 25 and AOC <b>129</b> has been moved to WAG <b>18</b>.</p> <p>SWMU <b>131</b> of WAG <b>7</b>, a 50 gallon UST, has been removed from the list A-5. This deletion <b>was</b> previously approved. SWMU 205 has been added to WAG 18.</p>
9	Attachment II, Section D, General Waste Handling Procedures. (following Table D-1)	<p>The paragraphs below, referencing the previously deleted C-400 Nickel Stripper Unit and the <b>C-409</b> unit have been deleted.</p> <p><i><b>“Waste Screening Methods. All wastes treated at C-400 or C-409 are screenedfor contents and compatibility with the treatmentprocess.</b></i></p> <p><i><b>C-409. All wastes handled in C-409 during development work or limited, infrequent treatment operations are characterized by the generator or by Technical Services Division personnel according to RCRA procedures (SW-846). All characteristics such as reactivity, ignitability, corrosivity, etc., are considered when the treatment system is being designed. Every batch or drum of materials is sampled and characterized prior to treatment. All effluents from C-409 are sampled and analyzed according to RCRA or KPDES criteria prior to discharge depending on the method of final disposition (discharge or storage).”</b></i></p>
10	Attachment II Section D, III D-1a(1)	The following text is added after the second sentence: The separate secondary containment area as described in Section D- <b>1a</b> (1) for the C-746-Q storage facility is provided by <b>8</b> inch curbs and contains storage bays 1 through 11.
11	Attachment III Table III-1	References to the C-400 building and the C-409 building have been removed.

Item Number	Permit Conditions or Attachments	Modifications
12	Attachment III Table 111-2	Valve number C-733-1160 has been added to the C-733 valve ID list. The C-409 section has been removed. Valve number C-746-R-3041 has been removed from the C-746 valve ID list.
13	Attachment IV, Section I-1(e), Equipment Decontamination and Sampling Procedure, (4 of the 5 listed Storage Areas)	<p>As previously approved, for each of the last four of five Storage Areas, under “Equipment Decontamination . . .”, the following sentences,</p> <p><i>“However, in order to remove debris from Subtitle C Regulation (CFR 261.3,[ff]), PGDP will collect one representative sample <del>from</del> each major component <del>or</del> material and analyze the material <del>for</del> applicable TCLP constituents. A minimum of 100 grams of sample passing the 9.5 millimeter sieve will be collected. The methods to reduce the debris size include, but are not limited to, drilling, shredding, and cutting.”</i>, have been be deleted and replaced with,</p> <p>“However, in order to remove debris from Subtitle C Regulation (CFR 261.3,[f]), PGDP will collect one or more samples from the residue resulting from the extraction technologies used and analyze the material for applicable TCLP constituents as specified in <b>SW-846</b>”.</p> <p>This change was previously made to the first of the five storage areas.</p>
14	Attachment VIII Appendix B, Leachate Collection and Removal Section	In the second sentence, “ <i>Prior to removal</i> ” has been deleted. After the second sentence, “The results of the leachate analysis will be reviewed prior to proper disposal.” has been added. In the second paragraph, first sentence, “. . . <i>in the existing C-400 decontamination unit. . .</i> ” has been deleted
15	Attachment IX, Appendix A	The text references a “sand filter” for the Northeast Plume ROD, which was previously removed. The text read, “Water will be pumped by way of underground piping <i>through a sandfilterfor removal of suspended solids, then</i> to the C-637 Cooling Tower Facility for removal of volatile organic compounds [trichloroethene (TCE)].” Also, “The contaminated water will <i>be filtered, then</i> piped to the C-637 Cooling Tower Facility, which will act <i>as</i> an air stripper and remove trichloroethene from the wastewater stream.” The text in italics has been deleted.
16	Attachment IX, Appendix B	Appendix <b>B</b> , describing the Record of Decision for WAG 17 has been added.

This revision is hereby approved under the provisions of 401 KAR 38:040, Section 3(3).



Robert H. Daniell, Director  
Kentucky Division of Waste Management



Kentucky Natural Resources and Environmental Protection Cabinet  
Department for Environmental Protection  
Division of Waste Management

**HAZARDOUS WASTE MANAGEMENT PERMIT**  
United States Department of Energy, Paducah Gaseous Diffusion Plant, and  
Lockheed Martin Energy Systems, Inc.  
5600 Hobbs Road  
Paducah, Kentucky 42001

The Division of Waste Management hereby grants the above-named facility a permit to engage in the activity specified below. This permit has been issued under the provision of KRS Chapter 224 and regulations promulgated pursuant thereto and is subject to all conditions and operating limitations contained herein. Issuance of this permit does not relieve the permittee from the responsibility of obtaining any other permits, licenses, or approvals required by this Cabinet and/or other federal, state and local agencies.

Part I Legal Authority  
Part II Specific Conditions  
Part III Standard Conditions  
Part IV Corrective Action  
Part V Special Conditions  
Part VI Referenced Attachments

No deviation from the plans and specifications submitted with your application or the conditions specified herein is allowed, unless authorized in writing from the Division of Waste Management. Violation of the terms and conditions specified herein shall render this permit null and void. All rights of inspection by representatives of the Division of Waste Management are reserved. Conformance with all applicable Waste Management Regulations is the responsibility of the permittee. Receipt of the permit fee and financial assurance specified below is hereby acknowledged.

PERMIT TYPE: Operation

PERMIT NUMBER: KY8-890-008-982

TYPE OF ACTIVITY: Storage, Treatment, and Postclosure

COUNTY: McCracken

PERMIT FEE:

EFFECTIVE DATE: August 19, 1991

HAZARDOUS WASTE MANAGEMENT UNITS:  
Tanks, Containers, and Landfill

EXPIRATION DATE: August 19, 2001

SUDDEN LIABILITY INSURANCE: N/A

NON-SUDDEN LIABILITY INSURANCE: N/A

CLOSURE AMOUNT: N/A

CLOSURE INSTRUMENT: N/A

POSTCLOSURE AMOUNT: N/A

POSTCLOSURE INSTRUMENT: N/A

Issued this 17th day of January 1997

  
Director  
Division of Waste Management

  
Commissioner  
Department for Environmental Protection

## PART I - LEGAL AUTHORITY

Pursuant to the Environmental Protection Law, as amended (KRS Chapter **224**) and attendant regulations promulgated thereunder by the Kentucky Natural Resources and Environmental Protection Cabinet, in the Kentucky Administrative Regulations Title **401**, a permit issued to the United States Department of Energy's Paducah Gaseous Diffusion Plant and Bechtel Jacobs Company L.L.C., for hazardous waste treatment, storage, and post-closure at 5600 Hobbs Road, Paducah, Kentucky, at latitude **37°06'55" N** and longitude **88°45'45" W (KY8-890-008-982)**.

The Permittee must comply with all terms and conditions of the permit. This permit consists of the conditions set forth in **Part II** (Specific Conditions), **Part III** (Standard Conditions), **Part IV** (Corrective Action), **Part V** (Special Requirements), **Part VI** (Land Disposal Restrictions), **Part VII** (Referenced Attachments), and the applicable waste management regulations. Applicable regulations **are** those which are in effect on the date of issuance and also upon modification, or revocation and reissuance of this permit [**401 KAR 38:030**, Section 3].

This permit is based on the assumption that the information in the permit application submitted on November 1, **1985** as modified by subsequent amendments (herein referred to as the application) on February **5, 1991** is accurate and that the facility will be operated as specified in the application and this permit. **Any** inaccuracies found in this information could lead to the termination or modification of this permit and potential enforcement action [**401 KAR 38:040**, Section **4**; and **401 KAR 40:040**, Section **1**]. The Permittee shall inform the Cabinet of any deviation from or changes in the information in the application which would affect the Permittee's ability to comply with the applicable regulations or permit conditions [**401 KAR 38:030**, Section 13].

This permit is effective August **19, 1991**, and shall remain in effect until the specified expiration, unless revoked and reissued, or terminated [**401 KAR 38:040**, Sections **2** and **4**; **401 KAR 38:050**, Section **2**; and **401 KAR 40:040**, Section 13].

**PART II - SPECIFIC CONDITIONS****II.A FACILITY DESCRIPTION**

II.A.1 This permit is issued for treatment, storage, and post-closure of hazardous waste at the U.S. Department of Energy's Paducah Gaseous Diffusion Plant, Paducah, Kentucky and Bechtel Jacobs Company L.L.C. (hereinafter referred to as the "facility") [401 KAR 34:010, Section 1]. Storage takes place in seven (7) storage tanks, and drum storage consists of five (5) container storage areas. Treatment of fluorescent/miscellaneous lamps occurs at two of the storage facilities.

*revised  
8/23/99  
see mod 15*

II.A.2 The hazardous wastes which may be treated and stored at this facility are listed below. Each of these hazardous wastes shall be treated and stored as specified within this permit. The waste codes are as defined in 401 KAR 31:030; 401 KAR 31:040 and 40 CFR 261.24 for "D" coded wastes.

- D001 Ignitable Waste
- D002 Corrosive Waste
- D003 Reactive Waste
- D004 Arsenic
- D005 Barium
- D006 Cadmium
- D007 Chromium
- D008 Lead
- D009 Mercury
- D010 Selenium
- D011 Silver
- D012 Endrin (1,2,3,4,10-hexachloro-1,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4-endo, endo-5,8-dimethano naphthalene)
- D013 Lindane (1,2,3,4,5,6-hexachlorocyclohexane, gamma isomer)
- D014 Methoxychlor (1,1,1-trichloro-2,2-bis (p-methoxy-phenyl)ethane)
- D015 Toxaphene (C<sub>10</sub> C., C., technical chlorinated camphene, 67-69 percent)
- D016 2,4-D (2,4-dichlorophenoxyacetic acid)
- D017 2,4,5-TP Silvex (2,4,5-trichlorophenoxy-propionic acid)
- D018 Benzene
- D019 Carbon tetrachloride
- D020 Chlordane
- D021 Chlorobenzene
- D022 Chloroform
- D023 o-Cresol
- D024 m-Cresol
- D025 p-Cresol
- D026 Cresol

- D029 1,1-Dichloroethylene
- D030 2,4-Dinitrotoluene
- D031 Heptachlor (and its hydroxide)
- D032 Hexachlorobenzene
- D033 Hexachlorobutadiene
- D034 Hexachloroethane
- D035 Methyl ethyl ketone
- D036 Nitrobenzene
- D038 Pyridine
- D039 Tetrachloroethylene
- D040 Trichloroethylene
- D041 2,4,5-Trichlorophenol
- D042 2,4,6-Trichlorophenol
- D043 Vinyl chloride

- F001 The following spent halogenated solvents used in degreasing: tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons; all spent solvent mixtures/blends used in degreasing containing, before use, a total of ten (10) percent or more (by volume) of one (1) or more of the above halogenated solvents or those solvents listed in F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
- F002 The following spent halogenated solvents: tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, orthodichlorobenzene, trichlorofluoromethane, and 1,1,2-trichloroethane; all spent solvent mixtures/blends containing, before use, a total of ten (10) percent or more (by volume) of one (1) or more of the above halogenated solvents or those solvents listed in F001, F004, and F005; and the still bottoms from the recovery of these spent solvents and spent solvent mixtures.
- F003 The following spent non-halogenated solvents: xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; all spent solvent mixtures/blends containing, before use, one (1) or more of the above non-halogenated solvents, and a total of ten (10) percent or more (by volume) of one (1) or more of those solvents listed in F001, F002, F004, and F005; and the still bottoms from the recovery of these spent solvents and spent solvent mixtures.
- F004 The following spent non-halogenated solvents: cresols and cresylic acid, and nitrobenzene; all spent solvent mixtures/blends containing, before use, a total of ten (10) percent or more (by volume) of one (1) or more of the above non-halogenated solvents or those solvents listed in F001, F002, and F005, and the still bottoms from the recovery of these spent solvents and spent solvent mixtures.
- F005 The following spent non-halogenated solvents: toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, and 2-nitropropane; all spent solvent mixtures/blends containing, before use, a total of ten (10) percent or more (by volume) of one

(1) or more of the above non-halogenated solvents, or those solvents listed in F001, F002, and F004; and the still bottoms from the recovery of these spent solvents and spent solvent mixtures.

- F00G Wastewater treatment sludges from electroplating operations except from the following processes: (1) sulfuric acid anodizing of aluminum; (2) tin plating on carbon steel; (3) zinc plating (segregated basis); (4) aluminum or zinc-aluminum plating on carbon steel; (5) cleaning/stripping associated with tin, zinc, and aluminum plating on carbon steel; and (6) chemical etching and milling of aluminum.
- F007 Spent cyanide plating bath solutions from electroplating operations.
- F00S Plating bath residues from the bottom of plating baths from electroplating operations where cyanides are used in the process.
- F027 Discarded unused formulations containing tri-, tetra-, or pentachlorophenol or discarded unused formulations containing compounds derived from these chlorophenols. (This listing does not include formulations containing hexachlorophene synthesized from prepurified 2,4,5-trichlorophenol as the sole component.)
- F039 Leachate (liquids that have percolated through land disposal wastes) resulting from the disposal of more than one restricted waste classified as hazardous under Subpart D of this part. (Leachate resulting from the disposal of one or more of the following hazardous wastes and no other hazardous wastes retain its hazardous waste number[s]: F020, F021, F022, F026, and/or F028).
- P023 Acetaldehyde, chloro-
- P002 Acetamide, N-(aminothioxomethyl)-
- P057 Acetamide, 2-fluoro-
- P058 Acetic acid, fluoro-, sodium salt
- P066 Acetimidic acid, N-((methylcarbamoyl)oxy)thio-, methyl ester
- P001 3-(alpha-acetonyl-benzyl)-4-hydroxycoumarin and salts
- P002 1-Acetyl-2-thiourea
- P003 Acrolein
- P070 Aldicarb
- P004 Aldrin
- P005 Allyl Alcohol
- P006 Aluminum phosphide
- P007 5-(Aminomethyl)-3-isoxazolol
- P008 4-Aminopyridine
- P009 Ammonium picrate
- P119 Ammonium vanadate
- P010 Arsenic acid,  $H_3AsO_4$
- P012 Arsenic (III) oxide,  $As_2O_3$
- P011 Arsenic (V) oxide,  $As_2O_5$
- PO11 Arsenic pentoxide

P012 Arsenic trioxide  
 P038 Arsine, diethyl-  
 P054 Aziridine  
 P013 Barium cyanide  
 P024 Benzenamine, 4-chloro-  
 P077 Benzenamine, 4-nitro-  
 P028 Benzene, (chloromethyl)-  
 P042 1,2-Benzenediol, 4-(1-hydroxy-2-(methylamino)ethyl)-  
 P014 Benzenethiol  
 P028 Benzyl chloride  
 P015 Beryllium dust  
 P016 Bis(chloromethyl) ether  
 P017 Bromoacetone  
 P018 Brucine  
 P021 Calcium cyanide  
 P123 Camphene, octachloro-  
 P103 Carbamimidoselenoic acid  
 P022 Carbon disulfide  
 P095 Carbonic dichloride  
 P033 Chlorine cyanide  
 P023 Chloroacetaldehyde  
 P024 p-Chloroaniline  
 P026 1-(o-Chlorophenyl)thiourea  
 P027 3-Chloropropionitrile  
 P029 Copper cyanide  
 P030 Cyanides (soluble cyanide salts), not elsewhere specified  
 P031 Cyanogen  
 P033 Cyanogen chloride  
 P036 Dichlorophenylarsine  
 P037 Dieldrin  
 P038 Diethylarsine  
 P039 O,O-Diethyl S-(2-(ethylthio)ethyl) phosphorothioate  
 P041 Diethyl-p-nitrophenyl phosphate  
 P040 O,O-Diethyl O-pyrazinyl phosphorothioate  
 P043 Diisopropyl fluorophosphate  
 P044 Dimethoate  
 P045 3,3-Dimethyl-1-(methylthio)-2-butanone, O-((methylamino)carbonyl) oxime  
 P071 O,O-Dimethyl O-p-nitrophenyl phosphorothioate  
 P082 Dimethylnitrosamine  
 P046 alpha, alpha-Dimethylphenethylamine  
 P047 4,6-Dinitro-o-cresol, and salts  
 P034 4,6-Dinitro-o-cyclohexylphenol  
 P048 2,4-Dinitrophenol  
 P020 Dinoseb  
 P085 Diphosphoramidate, octamethyl-

PO39 Disulfoton  
 P049 2,4-Dithiobiuret  
 P109 Dithiopyrophosphoric acid, tetraethyl ester  
 P050 Endosulfan  
 P088 Endothall  
 PO51 Endrin  
 P042 Epinephrine  
 P046 Ethanamine, 1,1-dimethyl-2-phenyl-  
 P084 Ethenamine, N-methyl-N-nitroso-  
 P101 Ethyl cyanide  
 P054 Ethylene imine  
 P097 Famphur  
 P056 Fluorine  
 P057 Fluoroacetamide  
 P058 Fluoroacetic acid, sodium salt  
 P065 Fulminic acid, mercury (II) salt  
 P059 Heptachlor  
 PO51 1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-endo,endo-1,4:5,8-dimethanonaphthalene  
 P037 1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-endo,exo-1,4:5,8-dimethanonaphthalene  
 P060 1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-1,4:5,8-endo,endo-dimethanonaphthalene  
 P004 1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-1,4:5,8-endo,exo-dimethanonaphthalene  
 P060 **Hexachlorohexahydro-exo-dimethanonaphthalene**  
 P062 Hexaethyl tetraphosphate  
 P116 Hydrazinecarbothioamide  
 P068 Hydrazine, methyl  
 P063 Hydrocyanic acid  
 P063 Hydrogen cyanide  
 P096 Hydrogen phosphide  
 P064 isocyanic acid, methyl ester  
 P007 (2H)-Isoxazolone, 5-(aminomethyl)-  
 P092 Mercury, (acetato-O)phenyl-  
 P065 Mercury fulminate  
 P016 Methane, oxybis (chloro-)  
 P112 Methane, tetranitro-  
 P118 Methanethiol, trichloro-  
 P059 7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro  
 P066 Methomyl  
 P067 -Methylaziridine  
 P068 methyl hydrazine  
 P064 methyl isocyanate  
 P069 -Methylactonitrile

P071 Methyl parathion  
 P072 alpha-Naphthylthiourea  
 P073 Nickel carbonyl  
 P074 Nickel cyanide  
 P074 Nickel (II) cyanide  
 P073 Nickel tetracarbonyl  
 P075 Nicotine and salts  
 P076 Nitric oxide  
 P077 p-Nitroaniline  
 P078 Nitrogen dioxide  
 P076 Nitrogen (II) oxide  
 P078 Nitrogen (IV) oxide  
 P081 Nitroglycerine  
 P082 N-Nitrosodimethylamine  
 P084 N-Nitrosomethylvinylamine  
 P050 5-Norbornene-2,3-dimethanol-1,4,5,6,7,7-hexachloro, cyclic sulfate  
 P085 Octamethylpyrophosphoramidate  
 P087 Osmium oxide  
 P087 Osmium tetroxide  
 P088 7-Oxabicyclo(2.2.1)heptane-2,3-dicarboxylic acid  
 P089 Parathion  
 P034 Phenol, 2-cyclohexyl-4,6-dinitro-  
 P048 Phenol, 2,4-dinitro-  
 P047 Phenol, 2-methyl-4,6-dinitro-, and salt  
 P020 Phenol, 2-(1-methylpropyl)-4,6-dinitro-  
 P009 Phenol, 2,4,6-trinitro-, ammonium salt  
 P036 Phenyl dichloroarsine  
 P092 Phenylmercuric acetate  
 P093 N-Phenylthiourea  
 P094 Phorate  
 P095 Phosgene  
 P096 Phosphine  
 P041 Phosphoric acid, diethyl-4-nitrophenyl ester  
 P044 Phosphorodithioic acid, O,O-dimethyl S-(2-(methylamino)-2-oxoethyl)ester  
 P043 Phosphorofluoric acid, bis(1-methylethyl)-ester  
 P094 Phosphorothioic acid, O,O-diethyl S-(ethylthio)methyl ester  
 P089 Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester  
 P040 Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester  
 P097 Phosphorothioic acid, O-(4-((dimethylamino)sulfonyl)phenyl) O,O-dimethyl ester  
 P110 Plumbane, tetraethyl-  
 P098 Potassium cyanide  
 P099 Potassium silver cyanide  
 P070 Propanal, 2-methyl-2-(methylthio), O-((methylamino)carbonyl)oxime-  
 P101 Propanenitrile  
 P027 Propanenitrile, 3-chloro-

P069 Propanenitrile, 2-hydroxy -2-methyl-  
 P081 1,2,3-Propanetriol, trinitrate-  
 P017 2-Propanone, 1-bromo-  
 P102 Propargyl alcohol  
 P003 2-Propenai  
 P005 2-Propen-1-ol  
 P067 1,2-Propylenimine  
 P102 2-Propyn-1-ol  
 P008 4-Pyridinamine  
 P075 Pyridine, (S)-3-(1-methyl-2-pyrrolidinyl); and salts  
 P111 Pyrophosphoric acid, tetraethyl ester  
 P103 Selenourea  
 P104 Silver cyanide  
 P105 Sodium azide  
 P106 Sodium cyanide  
 P108 Strychnidin-10-one, and salts  
 P018 Strychnidin-10-one, 2,3-dimethoxy-  
 P108 Strychnine and salts  
 P115 Sulfuric acid, dithallium (1+) salt  
 P109 Tetraethylthiopyrophosphate  
 P110 Tetraethyl lead  
 P111 Tetraethyl pyrophosphate  
 P112 Tetranitromethane  
 P062 Tetrakisphosphoric acid, hexaethyl ester  
 P113 Thallic oxide  
 P113 Thallium (III) oxide  
 P114 Thallium (I) selenite  
 P115 Thallium (I) sulfate  
 P045 Thiofanox  
 P049 Thioimidodicarbonic diamide  
 P014 Thiophenol  
 P116 Thiosemicarbazide  
 P026 Thiourea, (2-chlorophenyl)-  
 P072 Thiourea, 1-naphthalenyl-  
 P093 Thiourea, phenyl-  
 P123 Toxaphene  
 P118 Trichloromethanethiol  
 P119 Vanadic acid, ammonium salt  
 P120 Vanadium pentoxide  
 P120 Vanadium (V) oxide  
 P001 Warfarin, and salts, when present at concentrations greater than 0.3%  
 P121 Zinc cyanide  
 P122 Zinc phosphide,  $Zn_3P_2$ , when present at concentrations greater than 10%

U001 Acetaldehyde  
 U034 Acetaldehyde, trichloro-  
 U187 Acetamide, N-(4-ethoxyphenyl)-  
 U005 Acetarnide, N-9H-fluoren-2-yl-  
 u112 Acetic acid, ethyl ester  
 U144 Acetic acid, lead (2+) salt  
 U214 Acetic acid, thallium (I +) salt  
 u002 Acetone  
 u003 Acetonitrile  
 U004 Acetophenone  
 U005 2-Acetyl amino fluorene  
 U006 Acetyl chloride  
 U007 Acrylamide  
 U008 Acrylic acid  
 U009 Acrylonitrile  
 U150 Alanine, 3-(p-bis(2-chloroethyl)amino)phenyl-, L-  
 U011 Amitrole  
 u012 Aniline  
 U014 Auramine  
 U015 Azaserine  
 U010 Azirino [2',3':3,4]pyrrolo[1,2-a]indole-4,7-dione, 6-amino-8-[[aminocarbonyl]oxy]methyl]-1,1a,2,8,8a,8b-hexahydro-8a-methoxy-5-methyl-, [1aS-(1aalpha, 8beta, 8aalpha, 8balph)]-  
 U157 Benz(j)aceanthrylene, 1,2-dihydro-3-methyl-  
 U016 Benz(c)acridine  
 U016 3,4-Benzacridine  
 U017 Benzal Chloride  
 U018 Benz[a]anthracene  
 U018 1,2-Benzanthracene  
 U094 1,2-Benz[a]anthracene, 7,12-dimethyl-  
 u012 Benzenamine  
 U014 Benzenamine, 4,4'-carbonimidoylbis (N,N-dimethyl)-  
 U049 Benzenamine, 4-chloro-2-methyl-, hydrochloride  
 U093 Benzenamine, N,N'-dimethyl-4-(phenylazo)-  
 U328 Benzenamine, 2-methyl  
 u353 Benzenamine, 4-methyl  
 U158 Benzenamine, 4,4'-methylenebis (2-chloro-)  
 u222 Benzenamine, 2-methyl-, hydrochloride  
 U181 Benzenamine, 2-methyl-5-nitro  
 U019 Benzene  
 U038 Benzeneacetic acid, 4-chloro-alpha-(4-chlorophenyl)-alpha-hydroxy, ethyl ester  
 U030 Benzene, 1-bromo-4-phenoxy-  
 U037 Benzene; chloro-  
 U190 1,2-Benzenedicarboxylic acid anhydride  
 U028 1,2-Benzenedicarboxylic acid, (bis(2-ethylhexyl))ester

U069 1,2-Benzenedicarboxylic acid, dibutyl ester  
 U088 1,2-Benzenedicarboxylic acid, diethyl ester  
 U102 1,2-Benzenedicarboxylic acid, dimethyl ester  
 U107 1,2-Benzenedicarboxylic acid, dioctyl ester  
 U070 Benzene, 1,2-dichloro-  
 U071 Benzene, 1,3-dichloro-  
 U072 Benzene, 1,4-dichloro-  
 U017 Benzene, (dichloromethyl)-  
 U223 Benzene, 1,3-diisocyanatomethyl-  
 U239 Benzene, dimethyl-  
 u201 1,3-Benzenediol  
 U127 Benzene, hexachloro-  
 U056 Benzene, hexahydro-  
 U188 Benzene, hydroxy-  
 u220 Benzene, methyl-  
 U105 Benzene, 1-methyl-2,4-dinitro-  
 U106 Benzene, 1-methyl-2,6-dinitro-  
 U203 Benzene, 1,2-methylenedioxy-4-allyl-  
 U141 Benzene, 1,2-methylenedioxy-4-propenyl-  
 U090 Benzene, 1,2-methylenedioxy-4-propyl-  
 U055 Benzene, (1-methylethyl)-  
 U169 Benzene, nitro-  
 U183 Benzene, pentachloro-  
 U185 Benzene, pentachloronitro-  
 u020 Benzenesulfonic acid chloride  
 u020 Benzenesulfonyl chloride  
 U207 Benzene, 1,2,4,5-tetrachloro-  
 U023 Benzene, (trichloromethyl)-  
 U234 Benzene, 1,3,5-trinitro-  
 u021 Benzidine  
 u202 1,2-Benzisothiazol-3-one, 1,1-dioxide  
 u120 Benzo(j,k)fluorene  
 U248 2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenylbutyl)-, and salts, when present  
 at concentrations of 0.3% or less  
 u022 Benzo(a)pyrene  
 U022 3,4-Benzopyrene  
 U197 p-Benzoquinone  
 U023 Benzotrichloride  
 U050 1,2-Benzphenanthrene  
 U085 2,2-Bioxirane  
 u021 (1,1'-Biphenyl)-4,4'-diamine  
 U073 (1,1'-Biphenyl)-4,4'-diamine, 3,3'-dichloro-  
 U091 (1,1'-Biphenyl)-4,4'-diamine, 3,3'-dimethoxy-  
 U095 (1,1'-Biphenyl)-4,4'-diamine, 3,3'-dimethyl-  
 u024 Bis (2-chloroethoxy) methane

U027 Bis (2-chloroisopropyl) ether  
 U244 Bis (dimethylthiocarbamoyl) disulfide  
 U028 Bis (2-ethylhexyl) phthalate  
 U246 Bromine cyanide  
 U225 Bromoform  
 U030 4-Bromophenyl phenyl ether  
 U128 1,3-Butadiene, 1,1,2,3,4,4-hexachloro-  
 U172 1-Butanamine, N-butyl-N-nitroso-  
 U035 Butanoic acid, 4-(bis(2-chloroethyl) amino) benzene-  
 U031 1-Butanol  
 U159 2-Butanone  
 U160 2-Butanone peroxide  
 U053 2-Butenal  
 U074 2-Butene, 1,4-dichloro-  
 U031 n-Butyl alcohol  
 U136 Cacodylic acid  
 U032 Calcium chromate  
 U238 Carbamic acid, ethyl ester  
 U178 Carbamic acid, methylnitroso-, ethyl ester  
 U176 Carbamide, N-ethyl-N-nitroso-  
 U177 Carbamide, N-methyl-N-nitroso-  
 U219 Carbamide, thio-  
 U097 Carbamoyl chloride, dimethyl-  
 U215 Carbonic acid, dithallium (I) salt  
 U156 Carbonochloridic acid, methyl ester  
 U033 Carbon oxyfluoride  
 U211 Carbon tetrachloride  
 U033 Carbonyl fluoride  
 U034 Chloral  
 U035 Chlorambucil  
 U036 Chlordane, alpha and gamma isomers  
 U026 Chlornaphazine  
 U037 Chlorobenzene  
 U039 4-Chloro-m-cresol  
 U041 1-Chloro-2,3-epoxypropane  
 U042 2-Chloroethyl vinyl ether  
 U044 Chloroform  
 U046 Chloromethyl methyl ether  
 U047 beta-Chloronaphthalene  
 U048 o-Chlorophenol  
 U049 4-Chloro-o-toluidine, hydrochloride  
 U032 Chromic acid, calcium salt  
 U050 Chrysene  
 U051 Creosote  
 U052 Cresols

U052 Cresylic acid  
 U053 Crotonaldehyde  
 U055 Cumene  
 U246 Cyanogen bromide  
 U197 2,5-Cyclohexadiene-1,4-dione  
 U056 Cyclohexane  
 U057 Cyclohexanone  
 U130 1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-  
 U058 Cydophosphamide  
 U240 2,4-D, salts and esters  
 U059 Daunomycin  
 U060 DDD  
 U061 DDT  
 U142 Decachlorooctahydro-1,3,4-metheno-2H-cyclobuta(c,d)pentalen-2-one  
 U062 Diallylate  
 U133 Diamine  
 u221 Diaminotoluene  
 U063 Dibenz(a,h)anthracene  
 U063 1,2:5,6-Dibenzanthracene  
 U064 1,2:7,8-Dibenzopyrene  
 U064 Dibenz(a,i)pyrene  
 U066 1,2-Dibromo-3-chloropropane  
 U069 Dibutyl phthalate  
 U062 S-(2,3-Dichloroallyl)diisopropylthiocarbamate  
 U070 o-Dichlorobenzene  
 U071 m-Dichlorobenzene  
 U072 p-Dichlorobenzene  
 U073 3,3'-Dichlorobenzidine  
 U074 1,4-Dichloro-2-butene  
 U075 Dichlorodifluoromethane  
 U192 3,5-Dichloro-N-(1,1-dimethyl-2-propynyl)benzamide  
 U060 Dichloro diphenyl dichloroethane  
 U061 Dichloro diphenyl trichloroethane  
 U078 1,1-Dichloroethylene  
 U079 1,2-Dichloroethylene  
 U025 Dichloroethyl ether  
 U081 2,4-Dichlorophenol  
 U082 2,6-Dichlorophenol  
 U240 **2,4-Dichlorophenoxyacetic acid**, salts and esters  
 U083 1,2-Dichloropropane  
 U084 1,3-Dichloropropene  
 U085 1,2:3,4-Diepoxybutane  
 U108 1,4-Diethylene dioxide  
 U086 N,N-Diethylhydrazine  
 U087 O,O-Diethyl-S-methyl-dithiophosphate

U088 Diethyl phthalate  
 U089 Diethylstilbestrol  
 U148 1,2-Dihydro-3,6-pyridinedione  
 U090 Dihydrosafrole  
 U091 3,3'-Dimethoxybenzidine  
 U092 Dimethylamine  
 U093 Dimethylaminoazobenzene  
 U094 7,12-Dimethylbenz(a)anthracene  
 U095 3,3'-Dimethylbenzidine  
 U096 alpha, alpha-Dimethylbenzyl hydroperoxide  
 U097 Dimethylcarbamoyl chloride  
 U098 1,1-Dimethylhydrazine  
 U099 1,2-Dimethylhydrazine  
 U101 2,4-Dimethylphenol  
 u102 Dimethyl phthalate  
 U103 Dimethyl sulfate  
 U105 2,4-Dinitrotoluene  
 U106 2,6-Dinitrotoluene  
 U107 Di-n-octyl phthalate  
 U108 1,4-Dioxane  
 U109 1,2-Diphenylhydrazine  
 U110 Dipropylamine  
 U111 Di-N-propylnitrosamine  
 u001 Ethanal  
 U174 Ethanamine, N-ethyl-N-nitroso-  
 U067 Ethane, 1,2-dibromo-  
 U076 Ethane, 1,1-dichloro-  
 U077 Ethane, 1,2-dichloro-  
 U114 1,2-Ethanedithiolbiscarbamodithioic acid  
 U131 Ethane, 1,1,1,2,2,2-hexachloro-  
 U024 Ethane, 1,1'-(methylenebis(oxy))bis(2-chloro-)  
 u003 Ethanenitrile  
 U117 Ethane, 1,1'-oxybis-  
 U025 Ethane, 1,1'-oxybis(2-chloro)-  
 U184 Ethane, pentachloro-  
 U208 Ethane, 1,1,1,2-tetrachloro-  
 U209 Ethane, 1,1,2,2-tetrachloro-  
 U218 Ethanethioamide  
 u227 Ethane, 1,1,2-trichloro-  
 u359 Ethanol, 2-ethoxy  
 U247 Ethane, 1,1,1-trichloro-2,2-bis(p-methoxyphenyl)-  
 U043 Ethene, chloro-  
 U042 Ethene, 2-chloroethoxy-  
 U078 Ethene, 1,1-dichloro  
 13079 Ethene, 1,2-dichloro- (E-)

U210 Ethene, 1,1,2,2-tetrachloro-  
 U173 Ethanol,2,2'-(nitrosoimino)bis-  
 U004 Ethanone, 1-phenyl  
 U006 Ethanoyl chloride  
 U112 Ethyl acetate  
 U113 Ethyl acrylate  
 U238 Ethyl carbamate (urethane)  
 U038 Ethyl 4,4'-dichlorobenzilate  
 U114 Ethylenebis dithiocarbamic acid, salts and esters  
 U067 Ethylene dibromide  
 U077 Ethylene dichloride  
 U115 Ethylene oxide  
 U116 Ethylene thiourea  
 U117 Ethyl ether  
 U076 Ethylidene dichloride  
 U118 Ethylmethacrylate  
 U119 Ethyl methanesulfonate  
 U139 Ferric dextran  
 U120 Fluoranthene  
 U122 Formaldehyde  
 U123 Formic acid  
 U124 Furan  
 U125 2-Furancarboxaldehyde  
 U147 2,5-Fuandione  
 U213 Furan, tetrahydro-  
 U125 Furfural  
 U124 Furfuran  
 U206 Glucopyranose, 2-deoxy-2(3-methyl-3-nitrosoureido), D-  
 U126 Glycidylaldehyde  
 U163 Guanidine, N-nitroso-N-methyl- " " -nitro-  
 U127 Hexachlorobenzene  
 U128 Hexachlorobutadiene  
 U129 Hexachlorocyclohexane (gamma isomer)  
 U130 Hexachlorocyclopentadiene  
 U131 Hexachloroethane  
 u132 Hexachlorophene  
 U243 Hexachloropropene  
 U133 Hydrazine  
 U086 Hydrazine, 1,2-diethyl  
 U098 Hydrazine, 1,1-dimethyl-  
 U099 Hydrazine, 1,2-dimethyl-  
 U109 Hydrazine, 1,2-diphenyl-  
 U134 Hydrofluoric acid  
 U134 Hydrogen fluoride  
 U135 Hydrogen sulfide

U096 Hydroperoxide, 1-methyl-1-phenylethyl  
 U136 Hydroxydimethylarsine oxide  
 U116 2-Imidazolidinethione  
 U137 Indeno (1,2,3-cd)pyrene  
 U139 Iron dextran  
 U140 Isobutyl alcohol  
 U141 Isosafrole  
 U142 Kepone  
 U143 Lasiocarpine  
 U144 Lead acetate  
 U145 Lead phosphate  
 U146 Lead subacetate  
 U129 Lindane  
 U147 Maleic anhydride  
 U148 Maleic hydrazide  
 U149 Malononitrile  
 U150 Melphalan  
 U151 Mercury  
 U152 Methacrylonitrile  
 U092 Methanamine, N-methyl-  
 U029 Methane, bromo-  
 U045 Methane, chloro-  
 U046 Methane, chloromethoxy-  
 U068 Methane, dibromo-  
 U080 Methane, dichloro-  
 U075 Methane, dichlorodifluoro-  
 U138 Methane, iodo-  
 U119 Methanesulfonic acid, ethyl ester  
 U211 Methane, tetrachloro-  
 U121 Methane, trichlorofluoro-  
 U153 Methanethiol  
 U22j Methane, tribromo-  
 U044 Methane, trichloro-  
 U121 Methane, trichlorofluoro-  
     Methanoic acid  
 U036 4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-  
 U154 Methanol  
 U155 Methapyrilene  
 U247 Methoxychlor  
 U154 Methyl alcohol  
 U029 Methyl bromide  
 U186 1-Methylbutadiene  
 U045 Methyl chloride  
 U156 Methyl chlorocarbonate  
 U226 Methylchloroform

U157 3-Methylcholanthrene  
 U158 4,4'-Methylenebis (2-chloroaniline)  
 U132 2,2'-Methylenebis (3,4,6-trichlorophenol)  
 U068 Methylene bromide  
**U080** Methylene chloride  
 U122 Methylene oxide  
 U159 Methyl ethyl ketone  
 U160 Methyl ethyl ketone peroxide  
 U138 Methyl iodide  
 U161 Methyl isobutyl ketone  
 U162 Methyl methacrylate  
 U163 N-Methyl-N'-nitro-N-nitrosoguanidine  
 U161 4-Methyl-2-pentanone  
 U164 Methylthiouracil  
 U010 Mitomycin C  
 U059 5,12-Naphthacenedione, 8-acetyl- 10-((3-amino-2,3,6-trideoxy)-alpha-L-lyxo-hexopyranosyl)oxyl)-7,8,9,10,tetrahydro-6,8,11-trihydroxy-1-methoxy-, (8s-cis)-  
 U165 Naphthalene  
 U047 Naphthalene, 2-chloro-  
 U166 1,4-Naphthalenedione  
 U236 2,7-Naphthalenedisulfonic acid, 3,3'-((3,3'-dimethyl(1,1'-biphenyl)-4,4'diyl)bis(azo)bis (5)-amino-4-hydroxy)-, tetrasodium salt  
 U166 1,4,Naphthoquinone  
 U167 alpha-Naphthylamine  
 U168 beta-Naphthylamine  
 U026 2-Naphthylamine, N,N'-bis(2-chloromethyl)-  
 U169 Nitrobenzene  
 U170 p-Nitrophenol  
 U171 2-Nitropropane  
 U172 N-Nitrosodi-n-butylamine  
 U173 N-Nitrosodiethanolamine  
 U174 N-Nitrosodiethylamine  
 U111 N-Nitroso-N-propylamine  
 U176 N-Nitroso-N-ethylurea  
 U177 N-Nitroso-N-methylurea  
 U178 N-Nitroso-N-methylurethane  
 U179 N-Nitrosopiperidine  
 U180 N-Nitrosopyrrolidine  
 U181 5-Nitro-o-toluidine  
 U193 1,2-Oxathiolane, 2,2-dioxide  
 U058 **2H**-1,3,2-Oxazaphosphorin amine, N,N-bis(2-chloroethyl) tetrahydro-, 2-oxide  
 U115 Oxirane  
 U041 Oxirane, chloromethyl-  
 U182 Paraldehyde  
 U183 Pentachlorobenzene

U184 Pentachloroethane  
 U185 Pentachloronitrobenzene  
 See  
     F027 Pentachlorophenol  
 U186 1,3-Pentadiene  
 U187 Phenacetin  
 U188 Phenol  
 U048 Phenol, 2-chloro-  
 U039 Phenol, 4-chloro-3-methyl-  
 U081 Phenol, 2,4-dichloro-  
 U082 Phenol, 2,6-dichloro-  
 U101 Phenol, 2,4-dimethyl-  
 U170 Phenol, 4-nitro-  
 See  
     F027 Phenol, pentachloro-  
 See  
     F027 Phenol, 2,3,4,6-tetrachloro-  
 See  
     F027 Phenol, 2,4,5-trichloro-  
 See  
     F027 Phenol, 2,4,6-trichloro-  
 U137 1,10-(1,2-phenylene)pyrene  
 U145 Phosphoric acid, lead (II) salt (2:3)  
 U087 Phosphorodithioic acid, O,O-diethyl-, S-methyl ester  
 U189 Phosphorous sulfide  
 U190 Phthalic anhydride  
 U191 2-Picoline  
 U192 Pronamide  
 U194 1-Propanamine, (I,T)  
 U110 1-Propanamine, N-propyl-  
 U066 Propane, 1,2-dibromo-3-chloro-  
 U149 Propanedinitrile  
 U171 Propane, 2-nitro-  
 U027 Propane, 2,2' oxybis (2-chloro-)  
 U193 1,3-Propane sultone  
 U235 1-Propanol, 2,3-dibromo-, phosphate (3:1)  
 U126 1-Propanol, 2,3-epoxy  
 U140 1-Propanol, 2-methyl-  
 u002 2-Propanone  
 U007 2-Propenamide  
 U084 1-Propene, 1,3-dichloro-  
 u243 1-Propene, 1,1,2,3,3,3-hexachloro-  
 U009 2-Propenenitrile  
 U152 2-Propenenitrile, 2-methyl-  
 U008 2-Propenoic acid

U113 1-Propenoic acid, ethyl ester  
 U118 2-Propenoic acid, 2-methyl-, ethyl ester  
 U162 2-Propenoic acid, 2-methyl-, methyl ester  
 See  
   F027 Propionic acid, 2-(2,4,5-trichlorophenoxy)-  
 U194 n-Propylamine  
 U083 Propylene dichloride  
 U196 Pyridine  
 U155 Pyridine, 2-(2-(dimethylamino)-2-thenylamino)-  
 U179 Pyridine, hexahydro-N-nitroso-  
 U191 Pyridine, 2-methyl  
 U164 4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-  
 U180 Pyrrole, 1-nitroso  
 u200 Reserpine  
 U201 Resorcinol  
 u202 Saccharin and salts  
 u203 Safrole  
 U204 Selenious acid  
 U204 Selenium dioxide  
 U205 Selenium disulfide  
 U015 L-Serine, diazoacetate (ester)  
 See  
   F027 Silvex  
 U089 4,4'-Stilbenediol, alpha, alpha'-diethyl-  
 U206 Streptozotocin  
 U135 Sulfur hydride  
 U103 Sulfuric acid, dimethyl ester  
 U189 Sulfur phosphide  
 U205 Sulfur selenide  
 See  
   F027 2,4,5-T  
 U207 1,2,4,5-Tetrachlorobenzene  
 U208 1,1,1,2-Tetrachloroethane  
 U209 1,1,2,2-Tetrachloroethane  
 U210 Tetrachloroethylene  
 See  
   F027 2,3,4,6-Tetrachlorophenol  
 U213 Tetrahydrofuran  
 U214 Thallium (I) acetate  
 U215 Thallium (I) carbonate  
 U216 Thallium (I) chloride  
 U217 Thallium (I) nitrate  
 U218 Thioacetamide  
 U153 Thiomethanol  
 U219 Thiourea

U244 Thiram  
 u220 Toluene  
 u221 Toluenediamine  
 U223 Toluene diisocyanate  
 U328 o-Toluidine  
 U353 p-Toluidine  
 u222 O-Toluidine hydrochloride  
 U011 1H-1,2,4-Triazol-3-amine  
 U226 1,1,1-Trichloroethane  
 U227 1,1,2-Trichloroethane  
 U228 Trichloroethene  
 U228 Trichloroethylene  
 u121 Trichloromonofluoromethane  
 See  
     F027 2,4,5-Trichlorophenol  
 See  
     F027 2,4,6-Trichlorophenol  
 See  
     F027 2,4,5-Trichlorophenoxyacetic acid  
 U234 1,3,5-Trinitrobenzene  
 U182 1,3,5-Trioxane, 2,4,6-trimethyl-  
 U235 Tris(2,3-dibromopropyl)phosphate  
 U236 Trypan blue  
 U237 Uracil, 5(bis(2-chloromethyl)amino)  
 U237 Uracil mustard  
 U043 Vinyl chloride  
 U248 Warfarin, and salts, when present at concentrations of 0.3% or less  
 U239 Xylene  
 u200 Yohimban-16-carboxylic acid, 11,17-dimethoxy- 18((3,4,5-trimethoxybenzoyl)oxy)-, methyl ester, (3beta, 16beta, 17alpha, 18beta, 20alpha)-  
 u249 Zinc phosphide  $Zn_3P_2$ , when present at concentrations of 10% or less

## II.B GENERAL FACILITY STANDARDS

- II.B.1 Specific Restriction. The permittee shall not accept any hazardous wastes generated from off-site sources other than those wastes generated at ~~the~~ Paducah Gaseous Diffusion Plant (PGDP) by the United States Department of Energy (DOE) as a result of environmental restoration activities, the uranium enrichment process, or residuals generated from the off-site treatment and analysis of PGDP wastes.
- II.B.2 General Waste Analysis. The Permittee shall comply with all requirements set forth under 401 KAR 34:020, Section 4. The Waste Analysis Plan (Attachment I) is hereby incorporated and attached as part of this permit.

- II.B.3      Security. The Permittee shall comply with all requirements set forth under 401 KAR 34:020, Section 5, and Attachment V, "Inspection Schedule, Security, and Hazard Prevention," which is attached and incorporated as **part** of this permit.
- II.B.3.a      The Permittee shall maintain the gates and fences around *the* hazardous waste facility in good condition at all times.
- II.B.3.b      The Permittee shall post and maintain signs at the entrance of the active portion of the facility such **as** hazardous waste management areas and at other locations near those areas. These signs are to be legible from twenty-five (25) feet from any direction and read "DANGER -Unauthorized Personnel - Keep Out", or with similar legends **as** required by 401 KAR 34:020, Section 5.
- II.B.4      General Inspection Requirements. The Permittee shall comply with all requirements set forth under 401 KAR 34:020, Section 6; 401 KAR 34:180, Section 5; and 401 KAR 34:190, Section 6. The Permittee shall remedy any deterioration or malfunction discovered by an inspection. Records of inspection shall be kept as required by 401 KAR 34:020, Section 6(4).
- II.B.4.a      The Inspection Schedule included in Attachment V of the permit application is hereby incorporated and attached as part of this permit.
- II.B.4.b      In addition to the Inspection Schedule, the Permittee shall record **all** inspections in the inspection log format included in Attachment V of this permit.
- II.B.4.c      At a minimum the Permittee shall inspect the following components of the tank system once each operating day:
- II.B.4.c.i      Above ground portions of the ~~tank~~ system to detect corrosion or releases of waste;
- II.B.4.c.ii      Data gathered from monitoring and leak detection equipment to ensure that the ~~tank~~ system is being operated according to its design; and
- II.B.4.c.iii      Construction materials and the area immediately surrounding the externally accessible portion of the ~~tank~~ system, including the secondary containment system, to detect erosion or signs of releases of hazardous waste (e.g., wet spots, dead vegetation, etc.).
- II.B.5      Personnel Training. The Permittee shall conduct personnel training as required by 401 KAR 34:020, Section 7. The Training Outline is incorporated as part of this permit, Attachment VI, and shall be the guidance to the actual training. Employees who handle, store, and ship hazardous wastes are required to complete training courses relating to chemical hazards.

- II.B.5.a The Permittee shall maintain training documents and records as required by 401 KAR 34:020, Section 7(5) and (4).
  - II.B.5.b All new employees hired in positions that involve hazardous waste management shall successfully complete the training within six (6) months of their employment and must not work in unsupervised positions until they have completed the training.
  - II.B.5.c The whole training program shall be repeated annually and all employees involved in hazardous waste management shall receive appropriate training as required by 401 KAR 34:020, Section 7(3).
  - II.B.5.d The Permittee shall prepare and maintain detailed job descriptions with all information required by 401 KAR 34:020, Section 7(4), for all personnel involved in operations at hazardous waste storage facilities.
- II.B.6 Requirements for Ignitable, Reactive or Incompatible Wastes. The Permittee shall comply with all requirements set forth in 401 KAR 34:020, Section 8; 401 KAR 34:180, Sections 7 and 8; and 401 KAR 34:190, Sections 9 and 10. The Permittee must prevent accidental ignition or reaction of incompatible and/or reactive wastes.
- II.B.6.a The Permittee shall not place hazardous waste in an unwashed tank or container which previously held incompatible wastes or material.
  - II.B.6.b The Permittee shall utilize the procedure for determining ignitability, reactivity, and compatibility under the incorporated Attachment I (Waste Analysis **Plan**), Attachment II (General Waste Handling Procedures) hereby incorporated and **as** attached as **part** of this permit, to ensure that no ignitable, reactive or incompatible wastes are stored improperly.

## II.C PREPAREDNESS AND PREVENTION

- II.C.1 Design and Operation of Facility. The Permittee shall comply with all applicable requirements set forth in 401 KAR 34:030, Section 2. The Permittee must maintain and operate the facility to minimize the possibility of a fire, explosion, or unplanned sudden or non-sudden release of hazardous waste or hazardous constituents to air, soil, or surface water which could threaten human health and environment.
- II.C.2 Equipment Required. The Permittee shall comply with all requirements set forth under 401 KAR 34:030, Section 3.
  - II.C.2.a At a minimum, the Permittee shall keep all equipment at the facility as specified in the Contingency Plan. The Contingency Plan is hereby attached and incorporated as Attachment VII of this permit.

II.C.2.b            The Permittee shall maintain all emergency equipment in accordance with the Emergency Equipment List.

II.C.3            Testing and Maintenance of Equipment. The Permittee shall comply with all requirements set forth under 401 KAR 34:030, Section 4. The Permittee shall test and maintain all equipment at the facility to ensure proper operation in time of emergency.

II.C.4            Access to Communication or Alarm Systems. The Permittee shall comply with all requirements set forth under 401 KAR 34:030, Section 5.

II.C.5            Required Aisle Space. The Permittee shall comply with all requirements set forth under 401 KAR 34:030, Section 6. The Permittee shall maintain sufficient aisle space to allow unobstructed movement of emergency equipment.

II.C.6            Arrangements with Local Authorities. The Permittee shall comply with all requirements set forth under 401 KAR 34:030, Section 7. The Permittee shall make the appropriate arrangements with local hospitals, fire, and police departments, and other appropriate agencies for emergency response service by sending copies of the Contingency Plan to these agencies within one week of issuance of this permit. The Permittee shall document in the operating record any refusal by any of the agencies to enter into such arrangements.

## **II.D    CONTINGENCY PLAN AND EMERGENCY RESPONSE**

II.D.1            implementation of Contingency Plan. The Permittee shall comply with all requirements set forth under 401 KAR 34:040, Sections 2 and 3. The Permittee shall immediately carry out the provisions of the Contingency Plan **and** follow the emergency procedures described in 401 KAR 34:040, Section 7, whenever there is an imminent or actual emergency situation including a fire, explosion, or unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents, which could threaten human health or the environment.

II.D.2            Copies of the Contingency Plan. The Permittee shall comply with all requirements set forth under 401 KAR 34:040, Section 4. Current copies of the Contingency Plan shall be maintained at the facility and at all emergency response departments (i.e., fire, police, and hospital) that may provide emergency services.

II.D.3            Amendment of Contingency Plan. The Permittee shall review and amend the Contingency Plan as required by 401 KAR 34:040, Section 5. The Permittee shall address the requirements of 401 KAR 34:040, Section 5 on a routine basis by conducting an annual audit of the Contingency Plan **and** making appropriate modifications, including changes to the lists of emergency coordinators and/or equipment. Upon approval of the amended Contingency Plan, the Permittee shall provide copies to the Local Authorities specified in Condition II.C.6.

- II.D.4      Emergency Coordinator. The Permittee shall comply with all requirements set forth under 401 KAR 34:040, Section 6, concerning the Emergency Coordinator. An Emergency Coordinator shall be on-site or on call at all times.
- II.D.5      Emergency Procedures. The Permittee shall comply with all requirements set forth under 401 KAR 34:040, Section 7. The procedure stated in the Contingency Plan incorporated above must be implemented in accordance with the plan whenever there is an imminent or actual emergency situation, including any release, fire, or explosion which occurs in the hazardous waste management areas, and which could threaten human health or the environment.
- II.D.6      Notation in the Operating Record. The Permittee shall note in the operating record the time, date, and details of any incident that requires implementing the Contingency Plan.
- II.D.7      Notification to the Cabinet. The Permittee shall comply with notification procedures set forth in 401 KAR 34:040, Section 7.

## II.E    MANIFEST SYSTEM

- II.E.1      Use of Manifest System. The Permittee shall comply with the manifest requirements of 401 KAR 34:050, Section 2. A copy of the manifest shall be kept at the facility for at least three (3) years from the date of delivery of the waste.
- II.E.2      Manifest Requirements. Pursuant to 401 KAR 30:020, Section 2(1)(a), the Permittee is granted a variance from the requirements of 401 KAR 32:010, Section 1(6) for USEC-generated waste. The Cabinet finds that the procedure by which USEC-generated waste is shipped off-site from the storage areas listed in Condition 11.1 of this Permit and manifested by USEC to a commercial recycling, treatment, and/or disposal facility provides adequate protection of human health and safety. Because of the method of operation, the variance from 401 KAR 32:010, Section 1(6) is insignificant as a potential hazard to public health or the environment.
- II.E.3      Manifest Discrepancies. The Permittee shall comply with the requirements of 401 KAR 34:050, Section 3. Within 15 days of discovery of a significant discrepancy, the permittee shall report the discrepancy to the Cabinet, if the discrepancy cannot be reconciled within this 15 days.
- II.E.4      Waste Acceptance. The Permittee shall not accept any manifested hazardous waste at this facility.

## II.F    RECORDKEEPING AND REPORTING

- II.F.1      Operating Record. The Permittee shall comply with all requirements set forth under 401 KAR 34:050, Section 4. The Permittee shall maintain records of each hazardous waste

stored at the facility in accordance with the recordkeeping procedures set forth in 401 KAR 34:050.

II.F.2 Availability, Retention, and Disposition of Records. The Permittee shall comply with all requirements set forth under 401 KAR 34:050, Section 5.

II.F.3 Annual Report. The Permittee shall comply with all requirements set forth under 401 KAR 34:050, Section 6. The Permittee shall submit the Annual Report on the form designated by the Cabinet and, if requested by the Cabinet, shall provide an electronic transfer of Annual Report data. The annual report shall be submitted to the Cabinet by March 1 of each year and shall include the following information at a minimum:

- II.F.3.a EPA identification number, name, and address of facility;
- II.F.3.b Calendar year covered by the report;
- II.F.3.c Description and quantity of all wastes received during the year;
- II.F.3.d Method of treatment, storage, or disposal of each waste;
- II.F.3.e Information regarding transportation and the manifest, as applicable;
- II.F.3.f Description of changes in volume and toxicity achieved during the year;
- II.F.3.g Efforts taken to reduce the volume and toxicity of the waste generated; and
- II.F.3.h Signed certification.

II.F.4 Additional Reports. The Permittee shall comply with all requirements set forth under 401 KAR 34:050, Section 8. Additional activities for which reporting is required shall include releases, fires, explosions, **and** facility closures.

## II.G CLOSURE

II.G.1 Closure Performance Standards. Pursuant to 401 KAR 30:020, Section 2(2)(b), the Permittee is granted a variance from the requirements of 401 KAR 34:070. Debris, **as** defined in 40 CFR 268.3(g), from the following units may be treated at the time of closure in accordance with 40 CFR 268.45:

C-400-C Nickel Stripper Unit  
 C-409 **Hazardous** Waste Pilot Plant  
 C-733 Hazardous Waste Storage Area  
 C-746-A Hazardous and Mixed Waste Storage and Treatment Area  
 C-746-Q Hazardous Waste Storage and Treatment Area  
 C-746-R Waste Solvent Storage Area  
**C-752-A Environmental Restoration Waste Storage Area**

Debris that is treated in compliance with 40 CFR 268.45 and which does not exhibit a characteristic of hazardous waste identified in 401 KAR 31:030 may be managed **as** a solid waste.

*Revised  
8/23/99  
See Mod 15*

- II.G.2**      Notification of Closure. The Permittee shall notify the Director at least **45** days prior to the date he expects to begin closure in accordance with **401 KAR 34:070**, Section **3(4)(a)**.
- II.G.3**      Closure Plan and Amendment of Closure Plan. The Permittee shall comply with all requirements and close the facility **as** set forth under 401 KAR 34:070, Section **3**. The Permittee shall carry out closure as described in the attached Closure Guidance found in Appendix A of Attachment IV (Closure Plan). The Closure Plan **is** hereby adopted and incorporated by reference as Attachment IV and attached **as** a part of the permit. The Permittee shall amend the Closure Plan whenever necessary in accordance with **401 KAR 34:070**, Section 3(3).
- II.G.4**      Time Allowed for Closure. The Permittee shall comply with **401 KAR 34:070**, Section **4**. Within ninety days (90) after receiving the final volume of hazardous waste, the Permittee must remove from the facility all hazardous waste in accordance with the approved final Closure Plan, Attachment IV of this permit. All closure activities shall be completed as described in the attached Closure Plan; and within **180** days after receiving the final volume of waste, all equipment and the facility shall be decontaminated and washing residues removed.
- II.G.5**      Disposal or Decontamination of Equipment. The Permittee shall decontaminate and/or dispose of all facility equipment, structures, and soils **as** required by **401 KAR 34:070**, Section **5**, and the Closure Plan, Attachment IV of this permit.
- II.G.6**      Certification of Closure. The Permittee shall have an independent professional engineer registered in Kentucky certify that the facility has been closed in accordance with the specifications in the Closure Plan **as** required by **401 KAR 34:070**, Section **6**.

## **II.H    STORAGE AND TREATMENT IN TANKS**

- II.H.1**      General Description. The Permittee may store a total of twenty-nine thousand (29,000) gallons of hazardous waste in seven (**7**) tanks, pursuant to the terms of this permit and as listed on Table I and as located in Attachment II of this permit.
- II.H.2**      Waste Tank Compatibility. The Permittee shall store and/or treat only those wastes which are compatible with the corrosive protection and the steel of the tanks. The Permittee is prohibited from storing or treating hazardous waste that is not identified in Permit Condition II.H. 1.
- II.H.3**      Design of Tanks. The Permittee shall maintain all tanks as required by 401 KAR 34:190, Sections **3** through **5**, and as specified in the attached drawings in Attachment II of this permit. The shell thickness shall not be allowed to be less than the minimum **as** specified. A tank shall be replaced, repaired or decommissioned if the minimum shell thickness is found to be less than that stated in drawings found in Attachment II of this permit.

**TABLE I**  
**TANKS**

Tank Number	Tank Location	Dimensions of Tank	Capacity of Tanks	Secondary Containment Required	Description of Hazardous Waste	Hazardous Waste Number
1	C-733	8 ft (diam) x 11 ft 10 in	3000 gallons	Yes - In Place	Trichloroethylene  Spent Solvents  Waste Oil Contaminated with Halogenated Solvents	<del>F001</del> , D040  F001, F002, F003, F004, F005, D00X  F001, D00X
2	C-733	8 A (diam) x 11 A 10 in	3000 gallons	Yes - In Place	Same as Above	Same as Above
3	C-733	8 A (diam) x 11 ft 10 in	3000 gallons	Yes - In Place	Same as Above	Same as Above
4	C-733	8 A (diam) x 11 ft 10 in	3000 gallons	Yes - In Place	Same as Above	Same as Above

**II.H.4**      Design and Installation of New Tank Systems or Components.

**II.H.4.a**      Prior to placing a new tank system or component (i.e., tank, secondary containment, etc.) in use, the Permittee shall have an independent qualified installation inspector or an independent, qualified professional engineer registered in Kentucky, inspect the tank system to assess any damage or inadequate construction which incurred during installation of the tank system or components as required by **401 KAR 34:190**, Section 3(2).

**II.H.4.b**      The Permittee shall test all new tanks and ancillary equipment for tightness prior to placing these systems in use ~~as~~ required by **401 KAR 34:190**, Section 3(4). If a tank system is found not to be tight, all repairs necessary to remedy the leak(s) in the system must be performed prior to the tank being placed into use.

**II.H.5**      General Operating Requirements.

**II.H.5.a**      The Permittee shall comply with all the requirements set forth under **401 KAR 34:190**,Section 5, and Attachment II,"General Waste Handling Procedures."

**II.H.5.b**      The Permittee shall prevent overfilling of tanks as required by **401 KAR 34:190**,Section 5, by the methods specified in Attachment II of this permit.

**II.H.5.c**      The Permittee shall manage the tanks according to the conditions, and design standard, specified in Attachment II of this permit.

**II.H.5.d**      The Permittee shall manage the secondary containment for the tank systems in accordance with Attachment II of this Permit and **401 KAR 34:190**,Section 4 (2) through (6).

**II.H.6**      Special Requirements for Ignitable or Reactive Wastes.

**II.H.6.a**      The Permittee shall not place ignitable or reactive waste in a tank unless the procedures described in **401 KAR 34:190**, Section 9 are followed. Compliance with these requirements shall be documented through Attachment I, "Waste Analysis Plan" and Attachment II, "General Waste Handling Procedures." Any activity that requires compliance with **401 KAR 34:020**, Section 8(1) and (2) shall not be allowed except in accordance with Attachment II. The measures taken to comply shall be noted in the Operating Record required in Condition II.F.1.

II.H.6.b The Permittee shall maintain buffer zones around the *tanks* as required by 401 KAR 34:190, Section 9.

II.H.7 Special Requirements for Incompatible Waste. The Permittee shall comply with all requirements set forth under 401 KAR 34:190, Section 10, Attachment I (Waste Analysis Plan), and Attachment II (General Waste Handling Procedures).

## II.I CONTAINER MANAGEMENT PRACTICES

II.I.1 Container Storage Units. The Permittee may store the amounts of hazardous waste in containers at the units listed on Table II and as described in Attachment II of this permit.

II.I.2 Condition of Containers. The Permittee shall comply with all requirements set forth under 401 KAR 34:180, Section 2 to ensure that all hazardous waste containers are in good condition. If a container holding hazardous waste is not in good condition (e.g., severe rusting, apparent structural defects) or if it begins to leak, the Permittee shall transfer the hazardous waste from such container to a container that is in good condition or otherwise manage the waste in compliance with the conditions of this permit.

II.I.3 Compatibility of Waste with Containers. The Permittee shall comply with all requirements set forth under 401 KAR 34:180, Section 3. The containers used to store hazardous waste shall be made of or lined with compatible materials.

II.I.4 Management of Containers The Permittee shall manage and inspect the containers in accordance with 401 KAR 34:180, Sections 5 and 6, and according to Attachment II, "General Waste Handling Procedures" incorporated as a part of this permit. Containers shall not be stacked more than two high. The storage areas shall be inspected at least weekly for deterioration of the containers or containment system.

II.I.5 Containment Systems. The Permittee shall maintain the containment systems in accordance with 401 KAR 34:180, Section 6, and as specified in drawings included and referenced in Attachment II of this permit. The containment systems shall be constructed and operated as specified in 401 KAR 34:180, Section 6(2).

II.I.6 Inspection Schedule. The Permittee shall inspect the container area weekly to detect **leaking** containers and deterioration of the container and the containment system caused by corrosion and other factors in accordance with Attachment V (Procedures to Prevent Hazards), and 401 KAR 34:180, Section 5.

II.I.7 Special Requirements for Ignitable or Reactive Wastes. When storing ignitable or reactive wastes, the Permittee shall comply with the requirements of 401 KAR 34:020, Section 8; 401 KAR 34:180, Section 7; and Attachment II, (General Waste Handling

TABLE II  
CONTAINERS

Container Storage Area	Description of Hazardous Waste(s)	Hazardous Waste Number	Maximum Volume	Maximum Number and Type of Container
C-733	Miscellaneous flammable wastes!	D001, F00X, D00X	38,500 gallon	700 55-gallon drums***
	Tri(2-ethylhexyl) phosphate/hexane	D001		
	Waste mineral spirits	D001, F00X		
	Discarded batteries	D002, D003, D006, D008, D009		
	Methyl ethyl ketone peroxide	D001, D035		
	Miscellaneous acids and bases	D002, D00X		
	Miscellaneous reactive wastes	D003		
	Miscellaneous arsenic-bearing wastes	D004		
	Miscellaneous chromium-bearing wastes	D007		
	Sodium dichromate	D007		
	Miscellaneous lead-bearing wastes	D008		
	Miscellaneous mercury-bearing wastes	D009		
	Spent solvents	F001, F002, D003, F004, F005, D00X		

TABLE II  
CONTAINERS

Container Storage Area	Description of Hazardous Waste(s)	Hazardous Waste Number	Maximum Volume	Maximum Number and Type of Container
1-733 Cont.)	Spent trichloroethylene	F001, D040		
	Waste oil and halogenated solvents	F001, D00X		
	Waste oil contaminated with uranium and halogenated solvents and waste oil contaminated with halogenated solvents, uranium, and PCBs	F001, D00X	!	
	Offset blanket and roller wash-fast dry	D001, D039		
	Methanol/acetone	F003, D001		
	Dibutyl carbitol (scintillation) solution	F003, D001		
	Pentachlorophenol	F027		
	PCB/solvent contaminated oil/collection	F003, F005		
	Miscellaneous discarded laboratory chemicals	DOOX, UCOX, P00X		
	Miscellaneous TCLP/characteristic wastes	D00X		
	Leachate resulting from the TSD of wastes	F039		
	Aerosol cans	DOOX, UCOX		
	Waste oil	, DOOX		

TABLE II  
CONTAINERS

Container Storage Area	Description of Hazardous Waste(s)	Hazardous Waste Number	Maximum Volume	Maximum Number and Type of Container
c-733 (cont'd)	Miscellaneous laboratory/sampling wastes	D00X, F00X, <b>U00X</b> , P00X		
C-746-Q	Trichloroethylene	F001, D00X*	304,960 gallons	<b>5472</b> 55-gallon drums and one 4000 gallon container***
	Spent solvents	F001, F002, F003, F004, F005, D00X*		
	Uranium salvage	D002, D007, D008		
	Photographic fixer solution	D011		
	Nickel stripper solid residue	D002, D006, D007, D008		
	Miscellaneous discarded laboratory chemicals	<b>F00X</b> , <b>U00X**</b> , D00X*		
	Waste oil contaminated with halogenated solvents	<del>F00</del> 1, D00X*		
	Cascade vacuum dust	D007		
	Discarded batteries	D002, D003, D006, D008, D009		
	Silver cyanide	F007, D003, D011		
	Selenium rectifiers	D010		
	Waste oil contaminated with uranium and halogenated solvents	F001, D00X*		

TABLE II  
CONTAINERS

Container Storage Area	Description of Hazardous Waste(s)	Hazardous Waste Number	Maximum Volume	Maximum Number and Type of Container
2-746-Q cont'd)	Naste oil contaminated with halogenated solvents, iranium, and PCBs	001, D00X*		
	Miscellaneous acids and bases	1002, D00X*		
	Miscellaneous mercury-bearing wastes	D009		
	Miscellaneous aqueous solutions containing toxic metals	D002, D004, D005, D006, D007, D008, D009, D010, D011		
	Potassium dichromate filter cake ,	3007		
	Transuranic and technetium waste	D002, D007		
	Miscellaneous solid materials containing toxic metals	D004, D005, D006, D007, D008, D009, D010, D011		
	Pentachlorophenol	F027, D037		
	Uranium precipitate	D006, D007, D008		
	Transuranic waste liquid	D002, D007		
	Magnesium fluoride pellets	D007		
	Leachate resulting from the TSD of wastes	F039		
	Miscellaneous TCLP/characteristic wastes	D00X*		

TABLE II  
CONTAINERS

Container Storage Area	Description of Hazardous Waste(s)	Hazardous Waste Number	Maximum Volume	Maximum Number and Type of Container
C-746-Q (Cont.)	Miscellaneous laboratory/sampling wastes	D00X*, F00X, U00X, P00X		
	Treatment Residue	D00X*, F00X, U00X, P00X		
	Remediation/investigative wastes	D00X*, F00X, U00X, P00X		
C-746-R	Waste oil contaminated with halogenated solvents	F001, D00X*	11,000 gallons	200 55-gallon drums***
	Waste oil contaminated with uranium and halogenated solvents and waste oil contaminated with halogenated solvents, uranium and detectable PCBs	F001, D00X*		
	Tetrachloroethylene	F001, D040		
	Spent solvents	F001, F002, F003, F004, F005, D00X*		
	Spent solvent solids	F001, F002, F003, F004, F005, D00X*		
	Leachate resulting from the TSD of wastes	F039		
	Waste oil	D00X		

TABLE II  
CONTAINERS

Container Storage Area	Description of Hazardous Waste(s)	Hazardous Waste Number	Maximum Volume	Maximum Number and Type of Container
2-746-A	Trichloroethylene	F001, D040	561,440 gallons	0,208 55-gallon drums***
	Isopent solvents	F00X, D00X		
	Nickel stripper solid residue	D002, D006, D007, D008		
	Waste oil contaminated with halogenated solvents	F001, F002, D00X		
	Cascade vacuum dust	D007		
	Discarded batteries	D002, D003, D006, D008, D009		
	Selenium rectifiers	D010		
	Waste oil contaminated with uranium and halogenated solvents	F001, D00X		
	Waste oil contaminated with halogenated solvents, uranium and PCBs	F001, D00X		
	Miscellaneous laboratory/sampling wastes	D00X, U00X, F00X, P00X		
	Miscellaneous Mercury-Bearing Wastes	D009		
	Miscellaneous aqueous solutions containing toxic metals	D002, D004, D005, D006, D007, D008, D009, D010, D011		
	Potassium dichromate filter cake	D007		

TABLE II  
CONTAINERS

Container Storage Area	Description of Hazardous Waste(s)	Hazardous Waste Number	Maximum Volume	Maximum Number and Type of Container
1-746-A (cont.)	Transuranic and technetium waste	D002, D007		
	Miscellaneous solid materials containing toxic metals	D004, D005, D006, D007, D008, D009, D010, D011		
	Pentachlorophenol	D027, D037		
	Uranium precipitate	D006, D007, D008		
	Magnesium fluoride pellets	D007		
	Spent solvent solids	F001, F002, F003, F004, F005, D00X		
	Leachate resulting from the TSD of wastes	F039		
	Miscellaneous TCLP/characteristic wastes	D00X		
	Treatment residue	D00X, F00X, U00X, P00X		
	Remediation/investigation wastes	D00X, F00X, U00X, P00X		
	Waste oil	D00X		
	Miscellaneous discarded laboratory chemicals	D00X, U00X, P00X		

**TABLE II  
CONTAINERS**

Container Storage Area	Description of Hazardous Waste(s)	Hazardous Waste Number	Maximum Volume	Maximum Number and Type of Container
<b>3-752-A</b> (cont)	pent solvents	F00X, D00X	195,560 gallons	Solid Storage: 6,992 55-gal drums, 600 85- gal overpacks Free Liquids: 50 <del>1,200-gal</del> <b>containers</b>
	Nickel stripper solid residue	D002, D006, D007, D008		
	Waste oil contaminated with halogenated solvents	F001, F002, D00X		
	Cascade vacuum dust	D007		
	Discarded batteries	D002, D003, D006, D008, D009		
	Selenium rectifiers	D010		
	Waste oil contaminated with uranium and halogenated solvents	F001, D00X		
	Miscellaneous aqueous solutions containing toxic metals	D002, D004, D005, D006, D007, D008, D009, D010, D011		
	Potassium dichromate filter cake	D007		
	Transuranic and technetium waste	D002, D007		
	Waste oil contaminated with uranium and halogenated solvents	F001, D00X		
	Miscellaneous mercury-bearing wastes	D009		
	<b>PCP</b>	<b>F027, D037</b>		

TABLE II  
CONTAINERS

Container Storage Area	Description of Hazardous Waste(s)	Hazardous Waste Number..	Maximum Volume	Maximum Number and Type of Container
C-752-A (Cont.)	Miscellaneous solid materials containing toxic metals	D004, D005, D006, D007, D008, D009, D010, D011		
	Uranium precipitate	D006, D007, D008		
	Magnesium fluoride pellets	D007		
	Spent solvent solids	F001, F002, F003, F004, F005, DOOX		
	Leachate resulting from the TSD of wastes	F039		
	Miscellaneous TCLP/characteristic wastes	DOOX		
	Treatment residue	DOOX, FOOX, UOOX, P00X		
	Miscellaneous flammable wastes	D001, FOOX, DOOX		
	Tri(2-ethylhexyl)phosphate/hexane	D001		
	Waste mineral spirits	D001, FOOX		
	Methyl ethyl ketone peroxide	D001, D035		
	Offset blanket and roller wash-fast dry	D001, D039		
	Methanol/acetone	F003, D001		

TABLE II  
CONTAINERS

Container Storage Area	Description of Hazardous Waste(s)	Hazardous Waste Number	Maximum Volume	Maximum Number and Type of Container
C-752-A (Cont.)	Dibutyl carbitol (scintillation) solution	F003, D001		
	Miscellaneous discarded laboratory chemicals	D00X, U00X, P00X		
	Aerosol cans	D00X, U00X		
	Waste oil	D00X		
	Remediation/investigation wastes	D00X, F00X, U00X, P00X		
	Miscellaneous laboratory/sampling wastes	D00X, U00X, F00X, P00X		
	Miscellaneous acids and bases	D002, D00X		
	Trichloroethylene	F001, D00X		

- \* Excludes D001.
- \*\* Small quantities of (P or U) wastes or various discarded wastes exhibiting hazardous characteristics.
- \*\*\* Wastes may be stored in containers that are under or over 55-gallons in volume. The maximum volume of all containers in each area will not exceed the total volume given for 55-gallon drums.

Procedures). Any activity that requires compliance with 401 KAR 34:020, Sections 8(1) and (2), shall not be allowed without specific investigations and appropriate measures being taken to prevent fires and explosions. These investigations and preventive measures shall be documented and maintained in the Operating Record required by Condition II.F.1.

II.I.8 Treatment in Containers. The Permittee shall treat only fluorescent/miscellaneous lamps (mercury D009 and lead D008) for volume reduction. Treatment activities shall take place in the C-746-Q and C-746-A Hazardous Waste Storage and Treatment *Areas* in accordance with Attachment II.

II.I.9 Pressure Relief Devices. The Permittee may install pressure relief devices within the bungs on containers to allow venting of gases or vapors which may cause the container to rupture or burst and presents a health and safety concern. The Permittee shall maintain and inspect venting devices. All venting devices shall be fitted with appropriate filter(s) which shall remove or reduce hazardous constituents from released gases. Pressure relief devices may be installed on the containers which store the following types of hazardous wastes:

- Tri-2-ethyl hexyl phosphate (TEHP) from laboratory operations
- UF, rust sludge from drum washing activities
- Alumigold

II.I.9.a Upon the determination that a container may be a threat to human health or the environment due to the accumulation of compressed gases resulting from a specific waste stream other than those referenced within Condition II.I.9 of this permit, the Permittee may request the inclusion of these additional waste streams to be added to Condition II.I.9 of this permit.

II.I.9.b If the Permittee determines that a container poses an imminent and substantial endangerment and may rupture or burst due to accumulation of compressed gases, the Permittee may request, orally or written, venting of the container(s). A written approval or denial by the Director for venting of container(s) shall follow the Permittee request within seven (7) days.

## II.J DETECTION MONITORING FOR THE C-404 HAZARDOUS WASTE LANDFILL

II.J.1 The Permittee shall maintain a groundwater monitoring system for the uppermost aquifer and the Upper Continental Recharge System (UCRS). These wells shall comply with the requirements of 401 KAR 34:060, Sections 6 and 8.

II.J.1.a The Permittee shall construct and maintain the groundwater monitoring wells listed in Table III at the locations specified in Appendix A of Attachment VIII of this permit (Attachment VIII is hereby incorporated into this permit) and in accordance with 401 KAR 6:310.

**TABLE III**  
**MONITORING WELLS FOR C-404 HAZARDOUS WASTE LANDFILL**

Downgradient			Upgradient (Background Wells)		
<u>Upper RGA</u>	<u>Lower RGA</u>	<u>UCRS</u>	<u>Upper RGA</u>	<u>Lower RGA</u>	<u>UCRS</u>
MW-84	MW-86	MW-85	MW-93	MW-95	MW-94
MW-87	MW-89	MW-88	MW-227	MW-226	
MW-90	MW-92	MW-91			

II.J. 1.a.i The point of compliance monitoring wells consist of six (6) monitoring wells installed in the uppermost aquifer (RGA), as defined in Appendix A of Attachment VIII of this permit.

II.J. 1.a.ii The upgradient monitoring wells shall be used to determine background concentrations pursuant to II.J.2.b of this permit. These monitoring wells are designated as MW-93, MW-95, MW-226, and MW-227.

II.J. 1.b All wells deleted from the compliance monitoring program and sub-standard RCRA monitoring wells not in use shall be plugged and abandoned in accordance with Attachment VIII, Appendix B of this permit. Approval of an alternate method for well decommissioning may be approved by the Director. Well plugging and abandonment methods and certification shall be submitted to the Director within thirty (30) days from the date the wells are removed from the monitoring program.

II.J. 1.c The Permittee shall install replacement wells for any well listed in Condition II.J. 1.a which no longer meet the requirements in 401 KAR 34:060, Section 8. All replacement wells shall be designated by the letter "A" preceding the well number. In the event that an "A" series well is deleted from the monitoring system, the replacement well shall be designated as a "B" series and follows C, D, E, etc. for any individual monitoring well which is replaced.

II.J. 1.d  
II.J. 1.e

The Permittee shall submit a plan to the Director for installation of any replacement monitoring wells. The plan shall be submitted within thirty (30) days from the date the replacement well is proposed to be installed. The plan shall contain all items listed in Condition II.J. 1.h of this permit.

The Permittee shall submit to the Director a report of the surveyed elevation and the well construction details and specification upon completion of any new installation as required in Condition II.J.4.b of this permit.

## II.J.2 Indicator Parameters and Monitoring Constituents

- II.J.2.a The Permittee shall monitor all wells listed in Condition II.J. 1.a of this permit for the following parameters and constituents:

**TABLE IV  
MONITORING PARAMETERS AND CONSTITUENTS**

Constituents	Parameters
Trichloroethylene	
Arsenic	Total and Dissolved
Cadmium	Total and Dissolved
Chromium	Total and Dissolved
Lead	Total and Dissolved
Selenium	Total and Dissolved
Mercury	Total and Dissolved
Technetium <b>99</b>	Total
Uranium	Total

- II.J.2.b Background concentration shall be established from all upgradient monitoring wells in Condition II.J. 1.a.ii of this permit for those constituents listed in Table IV of this permit. The background data shall be based on one complete year of current data. The initial background concentration shall be based on four (4) consecutive quarters of data pursuant to 401 KAR 34:060, Section 9(3)(a). Subsequent background values shall be calculated continuously (rolling average) on a semi-annual basis.

## II.J.3 Sampling and Analysis Procedures

- II.J.3.a Samples shall be collected by the techniques described in Appendix D, Attachment VIII of this permit.
- II.J.3.b Water level measurements shall be made in all monitoring wells prior to evacuation or collection of samples. The depth to groundwater shall be made to an accuracy of 0.01 foot using an electric water level indicator.
- II.J.3.c The Permittee shall develop a field blank by filling one (1) of each type of sample container with deionized, distilled, laboratory-certified ultrapure water, handling it like a sample and returning it to the laboratory for analysis. With prior approval from the Division, equivalent water specifications are acceptable. The field blanks shall be developed at the well site **during** each sampling event. One (1) field blank per container type per sampling event shall be developed.
- II.J.3.d The Permittee shall develop a trip blank prior to each sampling event. The trip blank shall consist of a sealed organic sample container filled with deionized, distilled, laboratory-certified ultrapure water or with prior approval from the

Division, equivalent water specifications can be used. The trip blank shall accompany the sample containers for volatile organics and be analyzed for organics identified in Condition II.J.2.a of this permit.

- II.J.3.e Clean pairs of protective disposable gloves shall be utilized during all phases of groundwater sampling.
- II.J.3.f Samples shall be withdrawn from each monitoring well in Condition II.J. 1.a of this permit during each sampling event and field tested for temperatures, pH, and specific conductance. Results from the field tests shall be recorded in the groundwater sampling records log and the sample properly disposed.
- II.J.3.g Samples shall be withdrawn in the following order:
1. Samples to be analyzed for volatile organics.
  2. Samples to be analyzed for purgable organic halogens.
  3. Samples to be analyzed for total metals.
- II.J.3.h Samples shall be preserved in accordance with the procedures in Appendix D, Attachment VIII of this permit.
- II.J.3.i Samples shall be analyzed according to the procedures specified in 401 KAR 34:360, Section 2 and in Table V of this permit. Alternative SW-846 methods may be substituted with prior written approval from the Division.

**TABLE V**  
**SAMPLING METHODS**

Hazardous Constituents	SW-846, 3rd Edition Sample Methods
Trichloroethylene	8010,8240,8260
Arsenic	7060, 7061
Cadmium	7130,7131,6010
Chromium	7190,7191,6010
Lead	7421
Selenium	7740,7741
Mercury	7470
Technetium 99*	MEK Extraction, Method R-46
Uranium 234*	TIMS-3, Rev. 0
Uranium 235*	TIMS-3, Rev. 0
Uranium 238*	TIMS-3, Rev. 0
Total Uranium	TIMS-3, Rev. 0

\* These parameters shall be analyzed in accordance with Condition **II.J.3.m** of this permit.

- II.J.3.j The analytical laboratory shall also report spike recovery data for each series of groundwater sample collected.
- II.J.3.k At least one (1) duplicate sample shall be collected and analyzed according to the procedures specified in Condition II.J.3.i of this permit each time the groundwater quality is determined at the compliance point.
- II.J.3.l Samples shall be tracked and controlled using the chain of custody procedures specified in Appendix D, Attachment VIII of this permit.
- II.J.3.m The following radionuclide sampling procedures have been approved:

**TABLE VI**  
**SAMPLING PROCEDURES FOR RADIONUCLIDES**

Radionuclide	Method
Neptunium 237	Alpha Spectroscopy, Method R-54, Rev. 0
Technetium 99	MEK Extraction, Method R-46
Thorium 230	Alpha Spectroscopy, Method R-54, Rev. 0
Total Uranium	Thermal Ionization Mass Spectrometer (TIMS-3), Rev. 0
Uranium 234	TIMS-3, Rev. 0
Uranium 235	TIMS-3, Rev. 0
Uranium 238	TIMS-3, Rev. 0
Plutonium 239	Alpha Spectroscopy, Method R-54, Rev. 0

#### II.J.4 Groundwater Surface Elevation

- II.J.4.a The Permittee shall determine the groundwater surface elevation at each well, each time groundwater is sampled, as described in Condition II.J.3.b and in accordance with 401 KAR 34:060, Section 8(6).
- II.J.4.b The Permittee shall record the surveyed elevation of the monitoring well(s) when installed to determine the groundwater elevation in accordance with 401 KAR 34:060, Section 8(6).

II.J.5 Statistical Procedures. When evaluating the monitoring results pursuant to Condition II.J.6 of this Permit, the Permittee shall implement the statistical procedure in accordance with Attachment VIII, Appendix C, which satisfies the requirements of 401 KAR 34:060, Section 2.

#### II.J.6 Monitoring Program and Data Evaluation

- II.J.6.a The Permittee shall collect, preserve, and analyze samples in accordance with Condition II.J.3 of this permit.

- II.J.6.b The Permittee shall analyze for those indicator parameters listed in Table IV of this permit throughout the post-closure care period. These determinations shall be made semi-annually, from at least one (1) sample for each monitoring well described in Condition II.J. 1.a in accordance with 401 KAR 34:060, Sections 8(7) and 9(4).
- II.J.6.c The Permittee shall determine the groundwater flow rate and direction of flow in the uppermost aquifer at least annually as specified in 401 KAR 34:060, Section 9(5).
- II.J.6.d The Permittee shall determine whether a statistically significant increase has occurred over the background values for each time the groundwater quality is determined at the compliance point in accordance with Condition II.J.5 of this permit and 401 KAR 34:060, Section 9(7).
- II.J.6.e The Permittee shall statistically compare the measured concentration at each compliance point monitoring well specified in Condition II.J. 1.a of this permit in accordance with the statistical procedures specified in Condition II.J.5 of this permit.
- II.J.6.f The Permittee shall perform the evaluation described in Conditions II.J.6.d and II.J.6.e of this permit within sixty (60) days after completion of data validation.
- II.J.6.g The Permittee shall monitor for all hazardous constituents in Table IV of this permit during the compliance period. The compliance period is the number of years equal to the active life of the waste management area including any waste management activity prior to issuance of the post-closure permit. The compliance period is forty (40) years. The compliance period shall begin when the detection monitoring program is initiated in accordance with 401 KAR 34:060, Section 7.

#### II.J.7 Recordkeeping and Reporting

- II.J.7.a The Permittee shall enter all monitoring testing and analytical data obtained, according to Condition II.J.6 of this permit, in the operating record. The data must include all computations, calculated means, variances, and results of the statistical tests under 401 KAR 34:050, Section 4(2)(f).
- II.J.7.b The established background values and the calculation and computation necessary to determine background values must be submitted to the Director within sixty (60) days from the last semi-annual sampling event identified in condition II.J.6.c of this permit.
- II.J.7.c The Permittee shall submit the analytical and statistical results required by Conditions II.J.5 and II.J.6 of this permit in accordance with the schedule shown in Table VII:

**TABLE VII**  
**SCHEDULE FOR SUBMITTING SAMPLING RESULTS**

Samples to be Collected During the Months of:	Results Due to the Division by:
January - March July - September	May 30 November 30

II.J.7.d

The Permittee shall submit annual groundwater flow rate and direction by October 15 of each year of the post-closure period as specified in Condition II.J.6.c of this permit.

II.J.7.e

If the Permittee determines, pursuant to Condition II.J.6 and 401 KAR 34:060, Section 8(8), that there has been a confirmed statistically significant increase at any point of compliance wells for the parameters and constituents specified in Condition II.J.2.a in Table IV of this permit, the Permittee shall:

II.J.7.e.i      Notify the Director in writing within seven (7) days, **as** required by 401 JSAR 34:060, Section 9(8)(a) and 10(9)(a).

II.J.7.e.ii      Immediately resample the groundwater in all wells in Condition II.J. 1.a and determine the concentration of all constituents identified in 401 KAR 34:360, Section 1, **as** required by 401 KAR 34:060, Sections 9(8)(b) and 10. If a statistically significant increase is confined **for** Technetium-99 or Total Uranium in any well in Condition II.J.1.a, the Permittee shall immediately resample the groundwater in all wells in Condition II.J. 1.a for Technetium-99, Total Uranium, Uranium-234, Uranium-235, and Uranium-238.

II.J.7.e.iii      Establish background values for the upgradient wells for each 401 KAR 34:360, Section 1 constituent found in the groundwater **as** required by 401 KAR 34:060, Section 9(8)(c). The background data **shall** be based on one complete year of current data. The initial background concentration shall be based on four **(4)** consecutive quarters of data pursuant to 401 KAR 34:060, Section 8(7)(a). Subsequent background values shall be calculated continuously (rolling average) on a semi-annual basis.

II.J.7.e.iv      Establish a compliance monitoring program which meets the requirements of 401 KAR 34:060, Section 10, unless the parameter which has been confirmed **as** statistically significant at any point of compliance well(s) is Technetium-99 or Total Uranium. If Technetium-99 or Total Uranium has a confirmed statistically significant increase, the Permittee shall establish a compliance monitoring program in accordance with Conditions II.J.9.a.i, II.J.9.b, II.J.9.b.ii, II.J.9.c, II.J.9.f, and II.J.9.g.

II.J.7.e.v Submit to the Director, within one hundred eighty (180) days, an engineering feasibility plan for a corrective action, **as** required by 401 KAR 34:060, Section 9(7)(e). This Condition is not applicable when a statistically significant increase has been confirmed for Technetium-99, Total Uranium, Uranium-234; Uranium-235, or Uranium-238.

II.J.7.f If the Permittee determines, pursuant to Condition II.J.6 of this permit, there is a statistically significant increase at the compliance point for the parameters and constituents specified in Condition II.J.2.a of this permit, the Permittee may within ninety (90) days demonstrate that a source other than **a** regulated unit caused the increase or that the increase resulted from an error in sampling, analysis or evaluation in accordance with 401 KAR 34:060, Section 10(9)(b).

II.J.8 Groundwater Compliance Monitoring for the C-404 Hazardous Waste Landfill. If the Permittee determines pursuant to Condition II.J.6.e of this permit that there is a statistically significant increase for the hazardous constituents in Condition II.J.2.a of this permit, and determines that Condition II.J.7.f is not appropriate, the Permittee shall implement the Compliance Monitoring Program in accordance with Conditions in II.J.9 of this permit within 180 days of a confirmed statistical increase. If there **has** been **a** confirmed statistically significant increase for Technetium-99 or Total Uranium, then the Permittee shall implement **a** Compliance Monitoring Program in accordance with Conditions II.J.9.a.i, II.J.9.b, II.J.9.b.ii, II.J.9.c, II.J.9.f, and **II.J.9.g**.

II.J.9 Compliance Monitoring Program and Data Evaluation. The Permittee shall monitor wells in Condition II.J.1.a of this permit to ensure that the regulated unit is in compliance with the groundwater protection standard and 401 KAR 34:060, Section 10(1). The following hazardous constituents and the concentration limits comprise the groundwater protection standard. Additional hazardous constituents shall **be** determined pursuant to Condition II.J.7.e.

**TABLE VIII**  
**CONCENTRATION LIMITS FOR HAZARDOUS CONSTITUENTS**

Hazardous Constituents	Chemical Abstract Number	Concentration Limits (mg/L)
Arsenic	7440-38-2	0.05
Cadmium	7440-43-9	0.005
Chromium	7440-47-3	0.10
Lead	7439-92-1	0.05
Selenium	7782-49-2	0.05
Mercury	7439-97-6	0.002
Trichloroethylene	79-01-6	0.005
Technetium 99	N/A	*
Uranium 234	N/A	*
Uranium 235	N/A	*
Uranium 238	N/A	*
Total Uranium	N/A	*

\* The concentration limits shall be established in accordance with Condition II.J.7.e.iii of this permit.

- II.J.9.a The Permittee shall monitor for all hazardous constituents in Table VIII of this permit during the compliance period. The compliance period is the number of years equal to the active life of the waste management area including any waste management activity prior to issuance of the post-closure permit. This compliance period is forty (40) years. The compliance period shall begin when the compliance monitoring program is initiated in accordance with 401 KAR 34:060, Section 7.
- II.J.9.a.i Beginning with the calendar quarter following the month for which a statistically significant increase was reported for Technetium-99 or Total Uranium, the Permittee shall begin quarterly monitoring for Technetium-99, Total Uranium, Uranium-234, Uranium-235, and Uranium-238 and shall report the results to the Cabinet in accordance with Condition II.J.9.g. At the end of one year of quarterly monitoring, the Permittee shall submit a report to the Director which identifies the groundwater fate and transport of the radionuclides. The Permittee may also request that the frequency of the monitoring be modified after one year of quarterly monitoring.
- II.J.9.b The Permittee shall, in accordance with 401 KAR 34:060, Sections 6 and 10, determine groundwater quality upgradient and at the compliance point as described in Condition II.J.2 as follows:
- II.J.9.b.i The Permittee shall determine groundwater quality throughout the post-closure care period pursuant to 401 KAR 34:070, Section 8. These determinations shall be made semi-annually, from at least one (1) sample for each monitoring well described in Condition II.J.1.a of this permit, specified in Attachment VIII of this permit, and in accordance with 401 KAR 34:060, Sections 8(7) and 10(6).
- II.J.9.b.ii The Permittee shall express the groundwater quality at each monitoring well in a form necessary for the determination of statistically significant increases in accordance with Condition II.J.5.
- II.J.9.c Compliance monitoring required in Condition II.J.9.a and Condition II.J.9.a.i of this permit shall consist of collecting, preserving, transporting and analyzing samples from each upgradient and downgradient monitoring well in Condition II.J.1.a of this permit, in accordance with Condition II.J.3 of this permit, and Attachment VIII for those parameters listed in Table VIII of this permit.
- II.J.9.d The Permittee shall, in accordance with 401 KAR 34:060, Section 10(5), determine the groundwater flow rate and direction in the uppermost aquifer at least annually.
- II.J.9.e The Permittee shall analyze samples from all monitoring wells at the compliance point for all constituents contained in 401 KAR 34:360, Section 1, at least annually, to determine if additional hazardous constituents are present in the

uppermost aquifer. If the Permittee finds additional hazardous constituents present, excluding those parameters in Table VIII of this permit their concentration shall be reported to the Director in writing within seven (7) days of analysis and add them to the monitoring list of Table VIII.

II.J.9.f The Permittee shall in accordance with Condition II.J.6.d, II.J.6.e, and II.J.6.f of this permit evaluate statistical comparison on a semi-annual basis pursuant to the reporting schedule in Conditions II.J.9.g and II.J.9.h of this permit.

II.J.9.g The Permittee shall submit the analytical and statistical results required by Conditions II.J.5, II.J.6.e, II.J.9.b, and II.J.9.c of this permit in accordance with the following schedule:

**TABLE IX  
SCHEDULE FOR SUBMITTING SAMPLING RESULTS**

Samples to be Collected During the Month of:	Results Due to the Division by:
January-March	May 30
July-September	November 30

II.J.9.h In accordance with Condition II.J.9.f of this permit, the Permittee shall determine if the Groundwater Protection Standards established under Table VIII of this permit are being exceeded. If there has been a confirmed statistically significant increase above the groundwater protection standards, the Permittee shall:

II.J.9.h.i Notify the Director in writing within seven (7) days pursuant to 401 KAR 34:060, Section 10(9)(a).

II.J.9.h.ii Submit to the Director an application for a permit modification to establish a corrective action program meeting the requirements of 401 KAR 34:060, Section 11, within 180 days or within 90 days if an engineering feasibility study has been previously submitted to the Director. This Condition is not applicable when a statistically significant increase has been confirmed for Technetium-99, Total Uranium, Uranium-234, Uranium-235, or Uranium-238.

II.J.9.h.iii The Permittee need not submit the application required by Condition II.J.9.h.i of this permit if the Permittee successfully demonstrates that a source other than the regulated unit caused the increase or that the increase resulted from an error in sampling, analysis, or evaluation as specified by 401 KAR 34:060, Section 10(10).

- II.J. 10      Assurance of Compliance. The Permittee shall assure the Director that groundwater monitoring and corrective action measures necessary to achieve compliance with the groundwater protection standard under 401 KAR 34:060, Section 3 are taken during the term of the permit pursuant to 401 KAR 34:060, Section 9(11) or 401 KAR 34:060, Section 10(12).
- II.J. 11      Permit Modification. If the Permittee determines that the monitoring program required by this permit no longer satisfies the requirements of the regulations, he must, in accordance with 401 KAR 34:060, Sections 9(10) or 10(11), and within ninety (90) days, submit an application for a permit modification to make any appropriate changes to the program which shall satisfy the regulations.

## PART III

### III.A EFFECT OF PERMIT STANDARD CONDITIONS

compliance with the terms of this permit constitutes compliance, for purposes of enforcement, with KRS Chapter 224, as set out in 401 KAR 38:010, Section 3(1). Issuance of this permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local laws or regulations. Compliance with the terms of this permit does not constitute a defense to any action brought under Section 3013, 7003, 3008(a) or 3007 of Resource Conservation and Recovery Act of 1976, as amended (42 USC 6901 et seq.), commonly known as RCRA; Sections 104(a), 106(a), and 107 of the Comprehensive Environmental Response, Compensation & Liability Act of 1980 (CERCLA); the equivalent state statutes, or any other law governing protection of public health or the environment for any imminent and substantial endangerment to human health, welfare, or the environment [401 KAR 38:010, Section 3, and 401 KAR 38:030, Section 1(3,4, and 7)].

### III.B PERMIT ACTIONS

This permit may be modified, revoked, and reissued, or terminated for causes **as** specified in 401 KAR 38:040, Sections 1, 2, 3, and 4; 401 KAR 38:050, Section 2; 401 KAR 40:040, Section 1; and 401 KAR 38:070, Section 4. The filing of a request for a permit modification, revocation and reissuance, or termination or the notification of planned changes or anticipated non-compliance on the part of the Permittee does not stay the applicability or enforceability of any permit condition [401 KAR 38:030, Section 1(6)].

### III.C SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby [401 KAR 30:020, Section 5].

### III.D DEFINITIONS

For the purposes of this permit, terms used herein shall have the same meaning as those in Title 401 of Kentucky Administrative Regulations (401 KAR Chapters 30, 34, and 38), unless this permit specifically provides otherwise; where terms are not otherwise defined, the meaning associated with such terms shall be as defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term (401 KAR 30:010).

- III.D.1 “Area of Concern” (AOC) for the purposes of this permit shall mean any area having a probable or known release of a hazardous waste, hazardous constituent, or hazardous substance which is not from a SWMU and is determined by the Director to pose **a** current or potential threat to human health or **the** environment. An AOC may require investigation and remedial actions required under KRS 224.46-530(1)(g) and 401 KAR 38:030, Section 3 in order to ensure adequate protection of human health and the environment.

- III.D.2 "Contamination" for purposes of this permit refers to the presence of any hazardous constituent in a concentration which exceeds the background concentration of that constituent in the immediate vicinity of the facility (in areas not affected by the facility).
- III.D.3 "Corrective action" for purposes of this permit, may include all corrective measures necessary to protect human health and the environment for all releases of hazardous waste or hazardous constituents from any solid waste management unit at the facility, regardless of the time at which the waste was placed in the unit, as required under KRS 224.46-530 and 401 KAR 34:060, Sections 11 and 12.
- III.D.4 "Corrective Measures Implementation" (CMI) shall mean the design, construction, operation, maintenance, and monitoring of selected corrective measures. For the purposes of this Permit, the CMI shall meet the requirements of RCRA, the corrective action requirements of KRS 224, Chapter 46, their implementing regulations, and this Permit.
- III.D.5 "Corrective Measures Study" (CMS) shall mean the study or report identifying and recommending, as appropriate, specific corrective measures that will correct the release(s) identified during the RCRA Facility Investigation.
- III.D.6 "Days" shall mean calendar days, unless business days are specified. Any submittal or written statement ~~of dispute that~~ **under the terms** of this Permit would ~~be~~ due on ~~a~~ Saturday, Sunday, or holiday shall be due on the following business day.
- III.D.7 "DOE" shall mean the United States Department of Energy and its authorized representatives.
- III.D.8 "Extent of Contamination" for the purposes of this Permit is defined as the horizontal and vertical area in which the concentration of hazardous constituents in the environmental media being investigated are above detection limit or background concentrations indicative of the region, whichever is appropriate ~~as~~ determined by the Director.
- III.D.9 "Facility" for purposes of this Permit includes any contiguous property and structures, other appurtenances, and improvements on the property under the control of the Permittee.
- III.D. 10 "Feasibility Study" (FS) shall mean a study to develop and evaluate options for remedial action. The FS emphasizes data analysis and is generally performed concurrently and in an interactive fashion ~~with~~ the remedial investigation (RI), using the data gathered during the RI. The RI data are used to define the objectives of the response action, to develop remedial action alternatives, **and** to undertake an initial screening ~~and~~ detailed analysis of the alternatives. The term also refers to the report that describes the results of the study.
- III.D.1 1 "Hazardous constituents" or "hazardous waste constituents" for purposes of this permit are those substances listed in 401 KAR 31:170 and include hazardous constituents released from solid waste and hazardous constituents that are reaction by-products.

- III.D. 12 "Interim Measures" (IM) shall mean those measures conducted in accordance with Condition IV.E of this Permit to contain, remove, mitigate, or treat contamination resulting from the release of hazardous constituents from SWMUs in order to protect against current or potential threats to human health and the environment.
  
- III.D. 13 "Land Disposal" for the purposes of this Permit includes, but is not limited to, any placement of hazardous waste in a landfill, surface impoundment, wastepile, injection well, land treatment facility, salt dome formation, underground mine or cave, or concrete vault or bunker intended for disposal purposes.
  
- III.D. 14 "RCRA Facility Investigation" (RFI) shall mean an investigation performed in accordance with this Permit to gather data sufficient to adequately characterize the nature, extent, and rate of migration of actual and potential hazardous constituent releases. Those SWMUs and AOCs requiring RFIs are identified in Appendix A-1 to this Permit.
  
- III.D. 15 "Regulated Units" are any hazardous waste land disposal units which received hazardous waste after January 26, 1983 and are thereby subject to groundwater protection as defined in 401 KAR Chapter 34.
  
- III.D. 16 "Release" shall mean any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment of any hazardous waste or hazardous constituents.
  
- III.D. 17 "Solid waste" means any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage, or solid or dissolved material in irrigation return flows or industrial discharges which are point sources subject to permits under section 402 of the Federal Water Pollution Control Act, as amended (86 Stat. 880), or source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954, as amended (68 Stat. 923).
  
- III.D. 18 "Solid waste management unit" (SWMU) for the purposes of this permit includes any discernible unit which has been used for the treatment, storage, or disposal of solid or hazardous waste at any time, irrespective of whether the unit is or ever was intended for the management of solid or hazardous waste. RCRA regulated hazardous waste management units are also SWMUs. SWMUs include areas that have been contaminated by routine and systematic releases of hazardous waste or hazardous constituents, excluding one-time accidental spills that are immediately remediated and cannot be linked to waste management activities (e.g., product or product spills). Passive leakage from chemical storage tanks and production processes is also excluded from the definition unless the leakage is routine or systematic.
  
- III.D. 19 "Unit" for the purpose of this permit includes, but is not limited to, any area which waste has been placed on or in the ground, any landfill, surface impoundment, waste pile, land

treatment unit, incinerator, injection well, tank, container storage area, septic tank, drain field, wastewater treatment unit, elementary neutralization unit, transfer station, or recycling unit.

- III.D.20 "Waste Area Grouping" (WAG) shall mean a group of SWMUs or AOCs that are geographically contiguous, hydrologic units, or SWMUs/AOCs that exhibit other common characteristics (e.g., contaminant type, remedial alternatives, etc.). DOE may consolidate SWMUs, WAGs, and/or other areas into single groupings for purposes of conducting any work under this Permit and with the concurrence of the Director.

### III.E DUTIES AND REQUIREMENTS

- III.E.1 Duty to Comply. The Permittee shall comply with all conditions of this permit except to the extent and for the duration that such non-compliance is authorized by an emergency permit. Any permit non-compliance constitutes a violation of KRS Chapter 224 and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or denial of a permit renewal application [401 KAR 38:030, Section 1(1)].
- III.E.2 Duty to Reapply. At least 180 days before this permit expires, the Permittee must submit a complete application for a new permit if the Permittee wishes to continue any activity allowed under this permit (401 KAR 38:030, Section 1(2); 401 KAR 38:040; 401 KAR 38:050; and 401 KAR 38:070). The Permittee shall apply for a new permit in accordance with the regulations in effect 180 days prior to the expiration of this permit.
- III.E.3 Permit Expiration. This Permit and all conditions herein shall remain in effect beyond the permit's expiration date if the Permittee has submitted a timely, complete application and through no fault of the Permittee, the Director has not issued a new permit as set forth in 401 KAR 38:040, Section 6(1).
- III.E.4 Need to Halt or Reduce Activity Not A Defense. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity to maintain compliance with the conditions of this permit [401 KAR 38:030, Section 1(3)].
- III.E.5 Duty to Mitigate. The Permittee shall take all reasonable steps to minimize releases to the environment and shall carry out such measures as are reasonable to prevent adverse impact on the environment resulting from non-compliance with this permit [401 KAR 38:030, Section 1(4)].
- III.E.6 Proper Operation and Maintenance. The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance include effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the

of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit [401 KAR 38:030, Section 1(5)].

- III.E.7 Duty to Provide Information. The Permittee shall furnish the Cabinet, within a reasonable time, any relevant information needed to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. Upon request, the Permittee shall also furnish the Cabinet with copies of records kept ~~as~~ a requirement of this permit [401 KAR 38:030, Section 1(8)].
- III.E.8 Inspection and Entry. Upon presentation of credentials and other documents as may be required law, the Permittee shall allow the Director or an authorized representative [401 KAR 38:030, Section 1(9)]:
- III.E.8.a To enter at reasonable times the Permittee's premises where the regulated facility or activity is located or conducted; or where records must be kept under the conditions of this permit;
  - III.E.8.b To have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
  - III.E.8.c To inspect, at reasonable times, any facilities, equipment, (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
  - III.E.8.d To sample or monitor, at reasonable times, any substances or parameters at any location for the purposes of assuring permit compliance or ~~as~~ otherwise authorized by KRS Chapter 224.
- III.E.9 Monitoring: and Records
- III.E.9.a Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The methods used to obtain representative samples of the wastes to be analyzed must be the appropriate method from 401 KAR 31:120. Laboratory methods must be those specified in the most recent edition of Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846) or a method approved by the Director. All environmental monitoring data collected pursuant to Part II.J and Part IV of this Permit shall be submitted to the Division, both in written and electronic format. Sampling data shall be submitted in accordance with the schedules described in this Permit.
  - III.E.9.b The Permittee shall retain records at the facility of all monitoring information, copies of all reports and records required by this permit, and records of all data used to complete the application for this permit for a period of at least three (3) years from the date of the sample, measurement, report or record or until corrective measures on the regulated unit(s) are completed, whichever date is

later. These periods may be extended by the request of the Cabinet at any time and are automatically extended during the course of any unresolved enforcement action regarding this facility (401 KAR 38:030, Section 1 and 401 KAR 34:050, Section 5). The above permit condition also applies to all records which must be maintained for the SWMUs at the facility.

III.E.9.c Records of monitoring information shall include [401 KAR 38:030, Section 1(10)]:

- III.E.9.c.i The date, exact place, and time of sampling or measurements;
- III.E.9.c.ii The individual(s) who performed the sampling or measurements;
- III.E.9.c.iii The date(s) analyses were performed;
- III.E.9.c.iv The individual(s) who performed the analyses;
- III.E.9.c.v The analytical techniques or methods used; and
- III.E.9.c.vi The results of such analyses.

m.E.10 Reporting; Planned Changes. The Permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions that could affect solid waste management units at the facility. This would apply to all contiguous land, structures, other appurtenances and improvements on the land, used for the treatment, storage or disposal of solid waste. Activities within solid waste management units which are subject to notification must be approved by the Director prior to implementation. Notification and approval shall not be required for the following activities:

- III.E. 10.a Planned activities that do not have the potential to increase contamination or mobilize site contamination beyond the unit boundary (including, but not limited to, general maintenance activities inside and outside buildings, and installation of signs or fence posts).
- III.E. 10.b Planned activities that would not impede the Permittee from complying with the Corrective Action Provisions of this Permit.
- III.E. 10.c Planned activities that do not involve modification to the approved construction designs for an existing treatment, storage, and disposal (TSD) unit.
- III.E. 10.d SWMUs that have been designated No Further Action, **as** shown in Appendix A-2 to this Permit.
- III.E. 10.e Planned activities which are part of an emergency response operation.
- III.E. 10.f Releases at existing SWMUs derived from normal operation of the plant that are in compliance with the applicable permits or other relevant regulatory requirements.

III.E. 11 Anticipated Non-compliance. The Permittee shall give to the Director advance notice of any planned changes in the permitted facility or activity that may result in non-compliance with permit requirements [401 KAR 38:030, Section 1(12)(b)].

- III.E. 12      Transfer of Permit. This Permit may be transferred to a new owner or operator only if it is modified or revoked and reissued pursuant to 401 KAR 38:040, Section 2(2)(b) and 401 KAR 38:050, Section 2 or a minor modification made pursuant to 401 KAR 38:040, Section 3(4), in order to identify the new Permittee and incorporate such other requirements as may be necessary under KRS Chapter 224. Before transferring ownership or operation of the facility during its operating life, the Permittee shall notify the new owner operator in writing of the requirements of 401 KAR Chapters 38 and 34 and this permit [401 KAR 34:020, Section 3(3)]. This permit is not transferable to any person except after notice to the Director [401 KAR 38:030, Section 1(12)(c)].
- III.E.13      Compliance Schedule. Reports of compliance or non-compliance with or any progress reports on interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than fourteen (14) days following each scheduled date [401 KAR 38:030, Section 1(12)(e)].
- III.E. 14      Two Hour Reporting. The Permittee shall report to the Director any non-compliance which may endanger human health or the environment. Any information shall be provided orally within two (2) hours from the time the Permittee becomes aware of the circumstances (Kentucky twenty-four (24) hour reporting number (502) 564-7815). The information in Conditions III.E. 14.a and III.E. 14.b must be reported orally within two (2) hours [401 KAR 38:030, Section 1(12)(f)].
- III.E. 14.a      Information concerning a release of any hazardous waste or hazardous waste constituents that may cause an endangerment to public drinking water supplies.
- III.E. 14.b      Any information of a release or discharge of hazardous waste or hazardous waste constituents, or of a fire or explosion at the facility which could threaten the environment or human health outside the facility.
- III.E. 14.c      The description of the occurrence and its cause shall include:
- III.E. 14.c.i      Name, address, telephone number of the owner or operator;
  - III.E. 14.c.ii      Name, address, telephone number, and EPA identification number of the facility;
  - III.E. 14.c.iii      Date, time, and type of incident;
  - III.E. 14.c.iv      Name and quantity of material(s) involved;
  - III.E. 14.c.v      The extent of injuries, if any;
  - III.E. 14.c.vi      An assessment of actual or potential hazard to the environment and human health outside the facility, where this is applicable; and
  - III.E. 14.c.vii      Estimated quantity and disposition of recovered material that resulted from the incident.

A written submission shall also be provided within fifteen (15) days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the non-compliance and its cause; the periods of non-compliance (including exact dates and times); whether the non-compliance has been corrected; and if the non-compliance has not been corrected, the anticipated time it is expected

to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the non-compliance.

- III.E. 15      Other Non-Compliance. The Permittee shall report all instances of non-compliance not reported above, at the time annual reports are submitted. The reports shall contain the information listed in Condition III.E.14 of this permit [401 KAR 38:030, Section 1(12)(g)].
- III.E. 16      Permit Modification. This Permit shall be modified pursuant to 401 KAR 38:040, Section 3 to incorporate the RCRA Facility Investigation (RFI) plans developed under Condition IV.E and the corrective action plans, if necessary, developed as specified throughout Part IV of this permit.
- III.E. 17      Other Information. If the Permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Cabinet, such facts or information shall be submitted (or corrected) promptly. In addition, upon request, the Permittee shall furnish to the Cabinet any information related to compliance with the permit [401 KAR 38:030, Section 1(12)(i)].
- III.E. 18      Signatory Requirements. All reports or information required by this permit, or otherwise submitted to the Cabinet, shall be signed and certified by a principal executive officer, of at least the level of vice president, or by a duly authorized representative of that person in accordance with 401 **KAR** 38:070, Section 7, and 401 **KAR** 38:030, Section 1(11).
- III.E. 19      Amendment of Part A Application. The Permittee shall submit a revised **Part A** application if the Part A information changes in conjunction with any request for modification of this Permit. In addition, a revised Part A shall be submitted to the Cabinet ninety (90) days prior to change in the ownership or operational control of the facility pursuant to 401 KAR 38:040, Section 2(4) and the **Part A** shall be signed and certified by the new owner or operator.

### III.F CHANGES TO THE PERMIT

This permit shall be subject to any further statutory or regulatory changes whose purpose is the protection of health and welfare of the citizens of the Commonwealth or their environment [401 KAR 38:040, Section 2(1)(e)].

### III.G DOCUMENTS TO BE MAINTAINED AT FACILITY SITE

The Permittee shall maintain at the facility, until closure is completed and certified by an independent registered professional engineer, the following documents and amendments, revisions and modifications to these documents:

- III.G.1      This permit and any correspondence regarding this permit.
- III.G.2      Operating record as required by 401 KAR 34:050, Section 4.
- III.G.3      Personnel training documents and records as required by 401 KAR 34:020, Section 7.
- III.G.4      Tank management documents as required by 401 KAR 34:190.

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- III.G.5 Container management documents as required by 401 KAR **34:180**.
- III.G.6 Inspection logs as required by 401 KAR 34:020, Section 6, for a period of at least three **(3)** years.
- III.G.7 Annual Reports **as** required by 401 KAR 34:050, Section 3.
- III.G.8 Copy of the current Contingency Plan as required by 401 KAR 34:040, Section 4.

### **III.H CONFIDENTIAL INFORMATION**

The Permittee may claim confidential **any** information required to be submitted **by** this permit in accordance with 401 KAR 38:070, Section **8**.

## PART IV - CORRECTIVE ACTION

### IV.A APPLICABILITY

The Conditions of this Part apply to:

- IV.A.1        The solid waste management units (SWMUs) and Areas of Concern (AOC) identified in Appendix A-1 to this Permit, which require further investigation.
- IV.A.2        The SWMUs and **AOCs** identified in Appendices A-2 and A-3 which require no further action at this time or are addressed under the State permit.
- IV.A.3        Any additional SWMUs or AOCs discovered during the course of groundwater monitoring, field investigations, environmental audits, or other means.
- IV.A.4        Corrective actions beyond the facility boundary, if necessary. The Permittee shall implement corrective actions beyond the facility boundary, where necessary to protect human health and the environment, unless the Permittee demonstrates to the satisfaction of the Director that, despite the Permittee's best efforts **as** determined by the Director, the Permittee was unable to obtain the necessary permission to undertake such actions. The Permittee is not relieved of all responsibility to clean **up** a release that **has** migrated beyond the facility boundary where off-site access is denied. On-site measures to address such releases shall be determined on a case-by-case basis.
- IV.A.5        Several SWMUs and WAGs have been investigated during Phase I and Phase II of the CERCLA ACO Site Investigation. If the Director of the Kentucky Division of Waste Management (KDWM) determines that the SWMUs and WAGs have not been sufficiently addressed, they shall be addressed by a RCRA Facility Investigation (RFI) or Corrective Measures Study (CMS) in accordance with Part N of this permit. SWMUs requiring an RFI are identified in Appendix A-1(a) of this permit.

### IV.B NOTIFICATION AND ASSESSMENT REQUIREMENTS FOR NEWLY IDENTIFIED SWMUs AND AOCs

- IV.B.1        The Permittee shall notify the Director in writing: within fifteen (15) calendar days of discovery, of any additional SWMUs **as** discovered under Condition N.A.3.
- IV.B.2        The Permittee shall notify the Director in writing, within fifteen (15) calendar days of discovery, of any additional **AOCs** as discovered under Condition IV.A.3. The notification shall include, at a minimum, the location of the AOC and all available information pertaining to the nature of the release (e.g., media affected, hazardous constituents released, magnitude of release, etc.). If the Director determines that further investigation of an **AOC** is required, the permit shall be modified in accordance with 401 KAR 38:040, Section 2.
- IV.B.3        The Permittee shall prepare and submit to the Director, within ninety (90) calendar days of notification, a SWMU Assessment Report (**SAR**) for each SWMU identified under

Conditions IV.B.1 and IV.C.1. At a minimum, the SAR shall provide the following information:

- IV.B.3.a Location of unit(s) on a topographic map of appropriate scale such as required under 401 KAR 38:090, Section 2(18).
- IV.B.3.b Designation of type and function of unit(s).
- IV.B.3.c General dimensions, capacities and structural description of unit(s) (supply any available plans/drawings).
- IV.B.3.d Dates that the unit(s) was operated.
- IV.B.3.e Specification of all wastes that have been managed at/in the unit(s) to the extent available. Include any available data on constituents in the waste [401 KAR 31:170, Section 1].
- IV.B.3.f All available information pertaining to any release of hazardous waste or hazardous constituents from such unit(s), including groundwater data, soil analyses, air and/or surface water data.

IV.B.4 Based on the results of the SAR, the Director shall determine the need for further investigations at the SWMUs covered in the SAR. If the Director determines that such investigations are needed, the Permittee shall be required to prepare a plan for such investigations as outlined in Condition IV.D.i.b.

#### **IV.C NOTIFICATION REQUIREMENTS FOR NEWLY DISCOVERED RELEASES AT PREVIOUSLY IDENTIFIED SWMUs OR AOCs**

IV.C.1 The Permittee shall notify the Director in writing of any newly discovered release(s) of hazardous waste or hazardous constituents discovered during the course of groundwater monitoring, field investigations, environmental audits, or other means, within fifteen (15) calendar days of discovery. Such newly discovered releases may be from SWMUs or AOCs identified in Condition IV.A.2 or SWMUs identified in Condition IV.A.3 for which further investigation under Condition IV.B.4 was not required.

IV.C.2 If the Director determines that further investigation of the SWMUs or AOCs is needed, the Permittee shall be required to prepare a plan for such investigations as outlined in Condition IV.D.1.b.

#### **IV.D RCRA FACILITY INVESTIGATION (RFI)**

IV.D.1 RFI Workplan(s)

IV.D.1.a The Permittee shall prepare and submit to the Director, in accordance with the schedule of Appendix **A-4**, a RCRA Facility Investigation (RFI) Workplan(s)

for those units identified in Condition IV.A.1. For the investigation, units have been prioritized and assembled into Waste Area Groups (WAGs) according to Appendix A-5. The Workplan(s) shall be developed to meet the requirements of Condition IV.D.1.c.

In many instances, WAGs contain both SWMUs requiring an RFI [Appendix A-1(a)] and SWMUs already being addressed under the EPA CERCLA Administrative Consent Order (ACO) [Appendix A-1(b)]. If it is determined that Phase II of the CERCLA ACO site investigation **has** adequately addressed those SWMUs in the WAG, then the WAG RFI Workplans only need address those SWMUs requiring an RFI [Appendix A-1(a)].

IV.D.1.b

The Permittee shall prioritize the SWMUs/AOCs identified under Condition IV.B.4 or Condition IV.C.2 based on the threat the SWMUs/AOCs present to human health and the environment and assign the SWMU/AOC to a WAG in the RFI **Workplan** schedule of Appendix A-4 that best reflects the priority of the SWMUs/AOCs. The Permittee shall notify the Director and recommend assigning the SWMUs/AOCs to a WAG in the RFI Workplan schedule of Appendix A-4 either within the SWMU Assessment Report (**SAR**) or within 30 days of approval of the *SAR* required under Condition IV.B.3. The Director must approve the WAG and schedule assignments. The RFI Workplan(s) shall be developed to meet the requirements of Condition IV.D.1.c.

IV.D.1.c

The RFI Workplan(s) shall meet the requirements of Appendix B to this Permit **as** applicable. The Workplan(s) shall include schedules of implementation and completion of specific actions necessary to determine the nature and extent of releases and the potential pathways of contaminant releases to the air, land, surface water, and groundwater. The Permittee must provide sufficient justification and/or documentation that a release is not probable if a unit or a media/pathway associated with a unit (groundwater, surface water, soil, subsurface gas, or air) is not included in the RFI Workplan(s). Such deletions of a unit, media or pathway from the RFI(s) are subject to the approval of the Director. The Permittee shall provide sufficient written justification for any omissions or deviations from the minimum requirements of Appendix B. Such omissions or deviations are subject to the approval of the Director. In addition, the scope of the RFI Workplan(s) shall include all investigations necessary to ensure compliance with 401 KAR 34:060, Section 12.

IV.D.1.d

The RFI Workplan(s) must be approved by the Director, in writing, prior to implementation. The Director shall specify the start date of the RFI Workplan schedule in the letter approving the RFI Workplan(s). If the Director disapproves the RFI Workplan(s), the Director shall either (1) notify the Permittee in writing of the RFI Workplan's deficiencies and specify a due date for submission of a revised RFI Workplan, or (2) revise the RFI Workplan and notify the Permittee of the revisions and the start date of the schedule within the

approved RFI Workplan, or (3) conditionally approve the RFI Workplan and notify the Permittee of the conditions.

IV.D.2      RFI Implementation. The Permittee shall implement the RFI(s) in accordance with the approved RFI Workplan(s) and Appendix B to this Permit.

IV.D.3      RFI Reports

IV.D.3.a      If the time required to conduct the RFI(s) is greater than one hundred and eighty (180) calendar days, the Permittee shall provide the Director with quarterly RFI Progress Reports. These reports shall be submitted to the Director on or before the 30th day following the end of every quarter (i.e., January 30, April 30, July 30, and October 30). The Progress Reports may be combined with multiple projects and shall contain the following information at a minimum.:

- IV.D.3.a.i      A description of the portion of the RFI completed;
- IV.D.3.a.ii      Summaries of the findings;
- IV.D.3.a.iii      Summaries of all deviations from the approved RFI Workplan during the reporting period;
- IV.D.3.a.iv      Summaries of all problems or potential problems encountered during the reporting period and action taken to rectify problems;
- IV.D.3.a.v      Projected work for the next reporting period;
- IV.D.3.a.vi      Copies of daily reports, inspection reports, laboratory/monitoring data, etc., as requested by the Director;
- IV.D.3.a.vii      Summaries of all contacts with local community public interest groups or State government; and
- IV.D.3.a.viii      Changes in relevant personnel.

IV.D.3.b      The Permittee shall prepare and submit to the Director a draft and final RFI Reports for the investigations conducted pursuant to the Workplan(s) submitted under Condition IV.D.1. The draft RFI report(s) shall be submitted to the Director for review in accordance with the schedule in the approved RFI Workplan(s). The final RFI report(s) shall be submitted to the Director within forty-five (45) calendar days of receipt of the Director's comments on the draft RFI report. The RFI report(s) shall include an analysis and summary of all required investigations of SWMUs and AOCs and summary of all required investigations of SWMUs and AOCs and their results. The *summary* shall describe the type and extent of contamination at the facility, including sources and migration pathways, and a description of actual or potential receptors. The report(s) shall also describe the extent of contamination (qualitative/quantitative) in relation to background levels indicative of the area. The objective of this task shall be to ensure that the investigation data are sufficient in quality (e.g., quality assurance procedures have been followed) and quantity to describe the nature and extent of contamination, potential threat to human health and/or the environment, and to support a Corrective Measures Study, if necessary.

- IV.D.3.c The Director shall review the final RFI report and notify the Permittee of the need for further investigative action and/or the need for a Corrective Measures Study to meet the requirements of Condition IV.F, and 401 KAR 34:060, Section 12. The Director shall notify the Permittee of any "no further action" decision. Any further investigative action required by the Director shall be prepared and submitted in accordance with a schedule specified by the Director and approved in accordance with Condition IV.D.1.c. A Phased Investigation shall be conducted in accordance with the procedures established under Condition IV.D.

## **IV.E INTERIM MEASURES (IM)**

### **IV.E.1 IM Workplan**

- IV.E.1.a Upon notification by the Director, the Permittee shall prepare and submit **an** Interim Measures (IM) Workplan for any SWMU or AOC which the Director determines poses a current or potential threat to human health or the environment. Interim Measures are necessary in order to minimize or prevent the further migration of contaminants and limit human and environmental exposure to contaminants while long-term corrective action remedies are evaluated and, if necessary, implemented. The IM Workplan shall be submitted within ninety (90) calendar days of such notification and shall include the elements listed in Condition IV.E.1.b. Such interim measures may be conducted concurrently with investigations required under the terms of this permit.
- IV.E.1.b The IM Workplan shall ensure that the interim measures are designed to mitigate any current or potential threat(s) to human health or the environment and is consistent with and integrated into any long-term solution at the facility. The IM Workplan shall include: the interim measures objectives, procedures for implementation (including any designs, plans, or specifications), and schedules for implementation.
- IV.E.1.c The IM Workplan must be approved by the Director, in writing, prior to implementation. The Director shall specify the start date of the IM workplan schedule in the letter approving the IM Workplan. If the Director disapproves the IM Workplan, the Director shall either (1) notify the Permittee in writing of the IM Workplan's deficiencies and specify a due date for submission of a revised IM Workplan, or (2) revise the IM Workplan and notify the Permittee of the revisions and the start date of the schedule within the approved IM Workplan, or (3) conditionally approve the IM Workplan and notify the Permittee of the conditions.

### **IV.E.2 IM Implementation**

- IV.E.2.a The Permittee shall implement the interim measures in accordance with the approved IM Workplan.

- IV.E.2.b The Permittee shall give notice to the Director as soon as possible of any planned changes, reductions or additions to the IM workplan.
- IV.E.2.c Final approval of corrective action required under 401 KAR 34:060, Section 12 which is achieved through interim measures shall be in accordance with 401 KAR 38:040, Section 2 and Condition IV.F, and will be accomplished as a permit modification.

IV.E.3 IM Reports

- IV.E.3.a If the time required for completion of interim measures (IM) is greater than one year, the Permittee shall provide the Director with quarterly progress reports. These reports shall be submitted to the Director on or before the 30th day following the end of every fiscal year quarter (i.e., **January** 30, April 30, July 30, and October 30). The Progress Reports may be combined with multiple projects and shall contain the following information at a minimum:

- IV.E.3.a.i A description of the portion of the interim measures completed;
- IV.E.3.a.ii Summaries of all deviations from the IM Workplan during the reporting period;
- IV.E.3.a.iii Summaries of all problems or potential problems encountered during the reporting period;
- IV.E.3.a.iv Projected work for the next reporting period; and
- IV E.3.a.v Copies of laboratory/monitoring data.

- IV.E.3.b The Permittee shall prepare and submit an IM Report to the Director, within ninety (90) calendar days of completion of interim measures conducted under Condition IV.E. The IM Report shall contain the following information at a minimum:

- IV.E.3.b.i A description of the interim measures implemented;
- IV.E.3.b.ii Summaries of results;
- IV.E.3.b.iii Summaries of all problems encountered;
- IV.E.3.b.iv Summaries of accomplishments and/or effectiveness of interim measures; and
- IV.E.3.b.v Copies of all relevant laboratory/monitoring data, etc. in accordance with Condition III.E.9.

**IV.F CORRECTIVE MEASURES STUDY**

IV.F.1 Corrective Measures Study (CMS)

- IV.F.1.a The Permittee shall prepare and submit a CMS for those units requiring a CMS within one hundred and eighty (180) calendar days of notification by the Director that a CMS is required. This CMS shall be developed to meet the requirements of Condition IV.F.1.b.

IV.F.1.b The CMS shall meet the requirements of Appendix C as applicable. The CMS shall include schedules of implementation and completion of specific actions necessary to complete the study. The Permittee must provide sufficient justification and/or documentation for any unit deleted from the CMS. Such deletion of a unit is subject to the approval of the Director. Implementation of the CMS shall be conducted in accordance with the approved CMS. The Permittee shall provide sufficient written justification for any omissions or deviations from the minimum requirements of Appendix C. Such omissions or deviations are subject to the approval of the Director.

IV.F.1.c The Director shall either approve or disapprove, in writing, the CMS. If the Director disapproves the CMS, the Director shall (1) notify the Permittee in writing of the CMS's deficiencies and specify a due date for submittal of a revised CMS, or (2) revise the CMS **and** notify the Permittee of the revisions, or (3) conditionally approve the CMS and notify the Permittee of the conditions.

IV.F.2 Corrective Measures Study Implementation.

IV.F.2.a The Permittee shall begin to implement the study according to the schedules specified in the CMS, no later ~~than~~ fifteen (15) calendar days after the Permittee has received written approval from the Director for the CMS.

IV.F.2.b The Permittee shall submit the final corrective measure remedial design report upon completion of the construction design in accordance with the schedules in Attachment IX, Appendix B. Attachment IX is hereby incorporated into the permit.

IV.F.3 CMS Report

IV.F.3.a The Permittee shall prepare and submit to the Director **a** draft and final CMS report for the study conducted pursuant to the approved CMS. The draft CMS report shall be submitted to the Director in accordance with the schedule defined in the approved CMS. The final CMS report shall be submitted to the Director within forty-five (45) days of receipt of the Director's comments on the draft CMS report. The CMS report shall summarize any bench-scale or pilot tests conducted. The CMS report must include an evaluation of each remedial alternative. The CMS report shall present all information gathered under the approved CMS. The CMS final report must contain adequate information to support the Director's decision on the recommended remedy, described under Permit Condition IV.G.

IV.F.3.b If the Director determines that the CMS final report does not fully satisfy the information requirements specified under Permit Condition IV.F.3.a, the Director may disapprove the CMS final report. If the Director disapproves the CMS final report, the Director shall notify the Permittee in writing of deficiencies in the CMS final report and specify a due date for submittal of a

*revised  
8/23/99  
see mod 15*

CMS final report and specify a due date for submittal of a revised CMS final report. The Director will notify the Permittee of any “nofurther action” decision.

- IV.F.3.c As specified in Condition IV.F.3.b, and based on preliminary results and the CMS final report, the Director may require the Permittee to evaluate additional remedies or particular elements of one or more proposed remedies.

#### **IV.G REMEDY APPROVAL AND PERMIT MODIFICATION**

- IV.G.1 A remedy shall be selected from the remedial alternatives evaluated in the CMS. It shall be based at a minimum on protection of human health and the environment, as per specific site conditions, existing regulations, and guidance. The selected remedy may include any interim measures implemented to date.
- IV.G.2 Pursuant to 401 KAR 38:040, Section 2, a permit modification shall be initiated by the Director after recommendation of a remedy under Condition IV.G. 1. This modification shall serve to incorporate a final remedy into this permit [see Attachment IX, “Remedy Selection and Corrective Action for WAGs, AOCs and SWMUs”].

#### **IV.H MODIFICATION OF THE CORRECTIVE ACTION SCHEDULE OF COMPLIANCE**

- IV.H.1 If at any time the Director determines that modification of the Corrective Action Schedule of Compliance is necessary, the Director may initiate a modification to the Schedule of Compliance (Appendix D).
- IV.H.2 Modifications that are initiated and finalized by the Director according to proper procedure, as outlined in Appendix E, shall not be subject to administrative appeal, and shall proceed as described in 401 KAR 38:040, Section 2.
- IV.H.3 Modifications to the Schedule of Compliance do not constitute a reissuance of the Permit.

#### **IV.I IMMINENT HAZARDS**

- IV.I.1 The Permittee shall report to the Director any imminent or existing hazard to public health or the environment from any release of hazardous waste or hazardous constituents. Pursuant to 401 KAR 34:040, Section 7(10), such information shall be reported orally within 24 hours from the time the Permittee becomes aware of the circumstances. This report shall include the information specified under Condition III.E. 15.
- IV.I.2 A written report shall also be provided to the Director within fifteen (15) calendar days of the time the permittee becomes aware of the circumstances. The written report shall contain the information specified under Condition III.E.15.c.vi; a description of the release and its cause; the duration of the release; whether the release has been stopped; and if not, the length of time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the release.

#### **IV.J PLAN AND REPORT REQUIREMENTS**

- IV.J.1 Activities with SWMUs that are subject to notification, **as** specified by Condition III.E. 10 and associated plans and schedules shall be subject to approval by the Director prior to implementation. The Permittee shall revise all submittals and schedules **as** specified by the Director. Upon approval the Permittee shall implement all plans and schedules **as** written.
- IV.J.2 The results of all plans and reports shall be submitted in accordance with the approved schedule. Extensions of the due date for submittals may be granted by the Director based on the Permittee's demonstration that sufficient justification for the extension exists.
- IV.J.3 If the Director at any time determines that the **SAR** information required under Condition IV.B, or RFI Workplan(s) required under Condition IV.D, or the IM Workplan required under Condition IV.E no longer satisfies the requirements of 401 KAR 34:060, Section 12 or this permit in regard to prior or continuing releases of hazardous waste or hazardous constituents from SWMUs or AOCs, the Permittee shall submit an amended Workplan(s) to the Director within ninety (90) calendar days of such determination.
- IV.J.4 All reports shall be signed and certified in accordance with 401 KAR 38:070, Section 7.
- IV.J.5 Seven copies of all reports and plans shall be provided by the Permittee to the Director at the following address:  
Director  
Department for Environmental Protection  
Division of Waste Management  
14 Reilly Road  
Frankfort, Kentucky 40601-1190
- IV.K CORRECTIVE ACTION FOR SWMUs AND AOCs.** The Permittee shall submit the final report for the interim corrective measures remedial design for the Northeast Plume upon completion of the construction design in accordance with the schedule in Attachment IX, Appendix B. Attachment IX is hereby incorporated into this Permit.

## **APPENDIX B**

### **RCRA FACILITY INVESTIGATION (RFI) WORKPLAN OUTLINE**

## PART V - SPECIAL REQUIREMENTS

### V.A WASTE MINIMIZATION

The following conditions are pursuant to 401 KAR 34:050, Section 4(2)(i):

- V.A.1 Waste Minimization Certification. The Permittee shall be required to certify no less often than annually that the Permittee has a program in place to reduce the volume and toxicity of hazardous waste that he generates to the degree determined by the Permittee to be economically practicable. This program at a minimum should contain all the elements of Appendix F of this permit. The proposed method of treatment, storage or disposal shall be that practicable method currently available to the Permittee which minimizes the present and future threat to human health and the environment.
- V.A.2 Copies. The Permittee shall maintain copies of this certification in the facility operating record as required by 401 KAR 34:050, Section 4(2)(i).

### V.B LAND DISPOSAL RESTRICTIONS

- V.B. 1 401 KAR Chapter 37 identifies hazardous wastes that are restricted from land disposal and defines those limited circumstances in which an otherwise prohibited waste **may** continue to be placed on or in a land treatment, storage or disposal unit. The Permittee shall maintain compliance with the requirements of 401 KAR Chapter 32. Where the Permittee has applied for an extension, waiver or variance under 401 KAR Chapter 37, the Permittee shall comply with all restrictions on land disposal under this ~~Part~~ once the effective date for the waste has been reached pending final approval of such application.
- V.B.2 A restricted waste identified in 401 KAR Chapter 37 may not be placed in a land disposal unit without further treatment unless the requirements of 401 KAR Chapter 37 are met.
- V.B.3 The storage of hazardous wastes restricted from land disposal under 401 KAR Chapter 37 is prohibited unless the requirements of 401 KAR 37:050 are met.

### V.C ORGANIC AIR EMISSION STANDARDS

- V.C.1 Pursuant to Kentucky Revised Statutes Chapter 224.867(g), the Permittee shall comply with the requirements as applicable and as specifically set forth in Attachment 111.

### V.D RESPONSIBILITY

- V.D.1 The Permittee shall be responsible for all wastes, including USEC-generated wastes, that are stored in the storage areas listed within Condition II.I of this Permit. In the event of a release or other emergency, the Permittee will be responsible for ensuring that the proper response is taken pursuant to Section II.D of this Permit.

**APPENDIX A**

**SOLID WASTE MANAGEMENT UNIT (SWMU) *SUMMARY***



**Appendix A-1(a)**

Solid Waste Management Unit Summary  
 ■ U.S. DOE Paducah Gaseous Diffusion Plant  
 Paducah, Kentucky

Solid Waste Management Units and Areas of Concern Requiring an RFI:

SWMU/AOC	DESCRIPTION
4	C-747 Contaminated Burial Ground
5	C-746-F Classified Burial Ground
6	C-747-B Burial Ground
8	C-746-K Inactive Sanitary Landfill
11	C-400 Trichloroethylene Leak Site
12	C-747-A UF <sub>4</sub> Drum Yard
13	C-746-P Clean Scrap Yard
14	C-746-E Contaminated Scrap Yard
15	C-746-C Scrap Yard
16	C-746-D Classified Scrap Yard
17	C-616-E Sludge Lagoon
18	C-616-F Full Flow Lagoon
19	C-410-B HF Neutralization Lagoon
20	C-410-E HF Emergency Holding Pond
21	C-611-W Sludge Lagoon
22	C-611-Y Overflow Lagoon
23	C-611-V Lagoons
26	C-400 to C-404 Underground Transfer Line
27	C-722 Acid Neutralization Tank
28	C-712 Acid Neutralization Tank
31	C-720 Compressor Pit Water Storage Tank
38	C-615 Sewage Treatment Plant
40	C-403 Neutralization Tank
41	C-410-C Neutralization Tank
42	C-616 Chromate Reduction Facility
47	C-400 Technetium Storage Tank Area
55	C-405 Incinerator
56	C-540-A PCB Waste Staging Area
57	C-541-A PCB Waste Staging Area
58	N-S Diversion Ditch (Outside Plant Security Fence)
59	N-S Diversion Ditch (Inside Plant Security Fence)
60	C-375-E2 Effluent Ditch (KPDES 002)



SWMU/AOC	DESCRIPTION
61	C-375-E5 Effluent Ditch (KPDES 013)
62	<b>C-375-S6</b> Southwest Ditch (KPDES 009)
63	C-375-W7 Oil Skimmer Ditch (KPDES 008)
64	Little Bayou Creek
65	Big Bayou Creek
66	C-375-E3 Effluent Ditch (KPDES 010 Ditch)
67	C-375-E4 Effluent Ditch (KPDES 011)
68	C-375-W8 Effluent Ditch (KPDES 015)
69	C-375-W9 Effluent Ditch (KPDES 001)
70	C-333-A Vaporizer
71	C-337-A Vaporizer
75	C-633 PCB Spill Site
76	C-632-B Sulfuric Acid Storage Tank
77	C-634-B Sulfuric Acid Storage Tank
78	C-420 PCB Spill Site
82	C-531 Electric Switchyard
83	C-533 Electric Switchyard
84	C-535 Switchyard
85	C-537 Switchyard
86	C-631 Pumphouse and Cooling Tower
87	C-633 Pumphouse and Cooling Tower
88	C-635 Pumphouse and Cooling Tower
89	C-637 Pumphouse and Cooling Tower
91	UF <sub>6</sub> Cylinder Drop Test Area
92	Fill Area for Dirt from the C-420 PCB Spill Site
93	Concrete Rubble Pile
94'	KOW Trickling Filter and Leach Field
95'	KOW Bum Area
97	C-601 Diesel Spill
98	C-400 Basement Sump
99	C-745 Kellogg Building Site
100	Fire Training area
101	C-340 Hydraulic System
102	Plant Storm Sewer
105-109, 113, 129, 175	Concrete Rubble Pile(s)



SWMU/AOC	DESCRIPTION
136	C-740 TCE Spill Site (Northwest Corner, C-740 Concrete Pad)
137	C-746-A Inactive PCB Transformer Area
138	C-100 South Side Berm
145	Residential/Inert Landfill Borrow Area
153	C-331 PCB Soil Contamination (West)
154	C-331 PCB Soil Contamination (Southeast)
155	C-333 PCB Soil Contamination (West)
156	C-310 PCB Soil Contamination (West)
157*	KOW Toluene Spill Area
158	Chilled Water System Leak Site
159	<b>C-746-H3</b> Storage Pad
160	C-745 Cylinder Yard Spoils Area (PCB Soils)
161	C-743-T01 Trailer Site (Soil Backfill)
162	C-617-A Sanitary Water Line (Soil Backfill)
163	C-304 Building/HVAC Piping System (Soil Backfill)
164	KPDES Outfall Ditch 017 Flume (Soil Backfill)
165	C-616-L Pipeline and Vault Soil Contamination
166	C-100 Trailer Complex Soil Contamination (East)
167	C-720 Whiteroom Sump
168	KPDES Outfall Ditch 012
169	C-410-EHF Vent Surge Protection Tank
170	C-729 Acetylene Building Drain Pits
171	C-617-A Lagoons
172	C-726 Sandblasting Facility
175	Concrete Rubble Pile (28)
176	C-331 RCW Leak Northwest Side
177	C-331 RCW <b>Leak</b> East Side
178	C-724-A Paint Spray Booth
179	Plant Sanitary Sewer System
180	Outdoor Firing Range (WKWMA)
181	Outdoor Firing <b>Range (PGDP)</b>
182*	Western Portion of Yellow Waterline
183	McGraw UST
184	Concrete Rubble Pile (29)
185	C-611-4 Horseshoe Lagoon
192	C-710 Acid Interceptor Pit
193	McGraw Construction Facilities (Southside Cylinder Yards)
194	McGraw Construction Facilities (Southside)
195	Curlee Road Contaminated Soil Mounds
196	C-746-A Septic Tank



SWMU/AOC	DESCRIPTION
197	Concrete Rubble Pile (30)
198	C-4 10-D Area Soil Contamination
<b>199</b>	Big Bayou Creek Monitoring Station
200	Soil Contamination South of TSCA Waste Storage Facility
201	Northwest Groundwater Contamination Plume
202	Northeast Groundwater Contamination Plume
203	C-400 Sump
204	Dyke Road Historical Staging Area
205	Eastern Portions of the Yellow Water Line
209	C-720 Compressor Shop Pit Sump
210	Southwest Groundwater Plume
211	C-720 Trichloroethylene (TCE) Spill Site

\* Units **94, 95, 157, and 182** will be investigated and remediated by the U.S. Corps of Engineers (COE). If these units are not properly investigated and/or remediated by the COE, the Permittee will assess and augment investigative and remedial activities to fully meet the requirements pursuant to Part IV of this Permit.



**Appendix A-1(b)**

Solid Waste Management Unit Summary  
 U.S. DOE Paducah Gaseous Diffusion Plant  
 Paducah, Kentucky

Solid Waste Management Units and Areas of Concern suspected of contributing to off-site releases and currently undergoing a prioritized RFI investigation, focused feasibility study (FS/CMS), proposed plan, and interim/final record of decision under the CERCLA 104 and 106 Administrative Consent Order:

SWMU/AOC	DESCRIPTION
1	C-747-C Oil Landfarm
2	C-749 Uranium Burial Ground
3	C-404 Low-level Radioactive Waste Burial Ground
7	C-747-A Burial Ground
30	C-747-A Bum Area
32	C-728 Clean Waste Oil Tank
33	C-728 Motor Cleaning Facility
56	C-540-A PCB Staging Area
57	C-541-A PCB Waste Staging Area
64	Little Bayou Creek
65	Big Bayou Creek
74	C-340 PCB Transformer Spill Site
79	C-611 PCB Spill Site
80	C-540-A PCB Spill Site
81	C-541 PCB Spill Site
N/A	Groundwater

N/A Does not apply



## APPENDIX A-2

Solid Waste Management Units and Areas of Concern that Require No Further Action at this time:

SWMU Number	PGDP Facility Number	Description
9**	C-746-S	Residential Landfill
10**	C-746-T	Inert Landfill
24*	C-750-D	Underground Storage Tank (UST)
25*	C-750	1000-gallon Waste Oil Tank (UST)
29	C-746-B	TRU Storage Area
34	C-746-M	PCB Waste Storage Area
35	c-337	PCB Waste Storage Area
36	c-337	PCB Waste Staging Area
37	c-333	PCB Waste Storage Area
39	C-746-B	PCB Waste Storage Area
45	C-746-R	Waste Solvent Storage Area
46	C-409	Hazardous Waste Pilot Plant
48	C-400-A	Gold Dissolver Storage Tank
49	C-400-B	Waste Loutions Storage Tank
50	C-400-C	Nickel Stripper Evaporation Tank
51	C-400-D	Lime Precipitation Tank
52	C-400	Waste Decontamination Solution Storage Tanks
53	C-400	NaOH Precipitation Unit
54	C-400	Degreaser Solvent Recovery Unit
AOC 72*	c-200	Underground Gasoline Tanks (UST)
AOC 73*	C-710	Underground Gasoline Tanks (UST)
90	C-720	Underground Petroleum Naphtha Pipe
96	c-333	Cooling Tower Scrap Wood Pile
103, 104, 110-112, 114-128		Concrete Rubble Piles
<del>130</del>	<del>C-611</del>	<del>550 Gallon Gasoline UST (West of C-611)</del>
131	C-611	50-gallon Underground Storage Tank
132	C-611	2000 Gallon Oil UST (North of C-611)
133	C-611	Unknown Size, Grouted UST (South of C-611)
134	C-611	1000 Gallon Diesel/Gasoline Tank (SE of C-611)
135	c-333	PCB Soil Contamination (Northside of C-333)
139*	C-746-A1	Underground Storage Tank
140*	C-746-A2	Underground Storage Tank
141	C-720	Inactive TCE Degreaser Unit
142*	C-750-A	10,000-gallon Gasoline Tank (UST)
143*	C-750-B	10,000-gallon Gasoline Tank (UST)
146-152		Concrete Rubble Piles
173	C-746-A	Trash Sorting Facility
174	C-745-K	Low Level Storage Area
184		Concrete Rubble Pile
186	C751	Fuel Facility
187	C-611	Sentic Svstem



188	C-633	-	Septic System
189	C-637		Septic System
190	C-337-A		Sewage Treatment Aeration Tank
191	C-333-A		Sewage Treatment Aeration Tank
197		•	Concrete Rubble Pile
206***	C-753-A		Toxic Substances Control Act Waste Storage Building
208**	C-746-U		Contained Landfill

- \* These units will be addressed by the Kentucky Underground Storage Tank Program (Subtitle I).
- \*\* These SWMUs are permitted under a State of Kentucky Solid Waste Permit. The Kentucky Solid Waste program contains provisions for groundwater monitoring and closure.
- \*\*\* These SWMUs are addressed by the Toxic Substances Control Act.



**APPENDIX A-3**

Solid Waste Management Units which are being regulated by the State's portion of the RCRA permit:

SWMU Number	PGDP Facility Number	SWMU Description
3*	C-404	Low Level Radioactive Waste Burial Ground
43	C-746-B	Waste Chemical Storage Area
44	c-733	Hazardous Waste Storage Area
46A	C-746-Q	Hazardous and Low Level Mixed Waste Storage Building
144	C-746-A	Hazardous and Mixed Waste Storage Facility
207	C-752-A	Environmental Restoration Waste Storage Building

\*

Groundwater releases from C-404 are being addressed under the CERCLA ACO.



## APPENDIX A-4

The RFI Workplan Schedule for each Waste Area Group (WAG) at PGDP:

Order of Submittal	WAGs Included in RFI Workplan	Draft	Date Required
First	WAG 22 (SWMUs 2 and 3)		Schedule addressed under CERCLA ACO.
Second	WAGs 1, 7, and 10	D1	September 10, 1992
Third	WAG 23		Schedule addressed under CERCLA ACO.
Fourth	WAG 22 (SWMUs 7 and 30)		Schedule addressed under CERCLA ACO.
Fifth	WAG 17	D2	September 20, 1994
Sixth	WAG 6	D3	August 30, 1996
Seventh	WAG 27	D1	November 15, 1996
Eighth	WAG 28	D1	May 15, 1997
Ninth	WAG 3	D1	November 15, 1997
Tenth	WAG 24	D1	May 15, 1998
Eleventh	WAG 15	D1	November 15, 1998
Twelfth	WAG 11	D1	May 15, 1999
Thirteenth	WAG 9	D1	November 15, 1999
Fourteenth	WAG 19	D1	May 15, 2000
Fifteenth	WAG 16	D1	November 15, 2000
Sixteenth	WAG 5	D1	May 15, 2001
Seventeenth	WAG 21	D1	November 15, 2001
Eighteenth	WAG 20	D1	May 15, 2002
Nineteenth	WAG 13	D1	November 15, 2002
Twentieth	WAG 2	D1	May 15, 2003
Twenty-first	WAG 12	D1	November 15, 2003
Twenty-second	WAG 14	D1	May 15, 2004
Twenty-third	WAG 8	D1	November 15, 2004



Order of Submittal	WAGs Included in RFI Workplan	Draft	Date Required
Twenty-fourth	WAG 29	D1	May 15,2005
Twenty-fifth	WAG 30	D1	November 15,2005
Twenty-sixth	WAG 25	D1	May 15,2006
Twenty-seventh	WAG 18	D1	November 15,2006
Twenty-eighth	WAG 26	D1	May 15,2007

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**APPENDIX A-5**

Specific SWMUs are outlined in the following table:

<b>WAG 1</b>		
<u>Status</u>	<u>SWMUS</u>	<u>Description</u>
RFI	100	Fire Training Area
	136	C-740 TCE Spill Site
<b>WAG 2</b>		
<u>status</u>	<u>SWMUS</u>	<u>Description</u>
RFI	86	C-631 Pumphouse and Cooling Tower
	87	C-633 Pumphouse and Cooling Tower
	88	C-635 Pumphouse and Cooling Tower
	89	C-637 Pumphouse and Cooling Tower
<b>WAG 3</b>		
<u>status</u>	<u>SWMUS</u>	<u>Description</u>
RFI	4	C-747 Contaminated Burial Ground
	5	C-746-F Classified Burial Ground
	6	C-747-B Burial Area
<b>WAG 4</b>		
<u>status</u>	<u>SWMUS</u>	<u>Description</u>
UST Program	72	C-200 Underground Gasoline Tank
	73	C-710 Underground Gasoline Tank
	142	C-750-A 10,000 Gallon Gasoline Tank UST
	143	C-750-B 10,000 Gallon Diesel UST
<b>WAG 5</b>		
<u>status</u>	<u>SWMUS</u>	<u>Description</u>
RFI	31	C-720 Compressor Pit Water storage Tank
	76	C-632-B Sulfuric Acid Storage Tank
	77	C-634-B Sulfuric Acid Storage Tank
	169	C-410-EHF Vent Surge Protection Tank
<b>WAG 6</b>		
<u>status</u>	<u>SWMUS</u>	<u>Description</u>
RFI	11	C-400 Trichloroethylene Leak Site
	26	C-400 to C-404 Underground Transfer Line
	40	C-403 Neutralization Tank
	47	C-400 Technetium Storage Tank Area
	203	C-400 Sump



WAG 7		
<u>Status</u>	<u>SWMUS</u>	<u>Description</u>
RFI	8	C-746-K Inactive Sanitary Landfill
	130	C-611 550 Gallon Gasoline UST
	131	C-611 50 Gallon Gasoline UST
	132	C-611 2000 Gallon Oil UST
	133	C-611 Unknown Size, Grouted UST
	134	C-611 1000 Gallon Diesel/Gasoline Tank
WAG 8		
<u>status</u>	<u>SWMUS</u>	<u>Description</u>
RFI	82	C-531 Electrical Switchyard
	83	C-533 Electrical Switchyard
	84	C-535 Electrical Switchyard
	85	C-537 Electrical Switchyard
WAG 9		
<u>status</u>	<u>SWMUS</u>	<u>Description</u>
RFI	27	C-722 Acid Neutralization Tank
	28	C-712 Acid Neutralization Lagoon
	165	C-616-L Pipeline and Vault Soil Contamination
	170	C-729 Acetylene Building Drain Pits
WAG 10		
<u>Status</u>	<u>SWMUS</u>	<u>Description</u>
RFI	94	KOW Trickling Filter and Leach Field
	95	KOW Bum Area
	157	KOW Toluene Spill Area
	182	Western Portion of Yellow Waterline
WAG 11		
<u>status</u>	<u>SWMUS</u>	<u>Description</u>
RFI	19	C-410-B HF Neutralization Lagoon
	20	C-410-EEmergency Holding Pond
	41	C-410-CNeutralization Tank
WAG 12		
<u>status</u>	<u>SWMUS</u>	<u>Description</u>
RFI	17	C-616-E Sludge Lagoon
	18	C-616-F Full Flow Lagoon
	42	C-616 Chromate Reduction Facility



<b>WAG 13</b>		
<u>status</u> RFI	<u>SWMUS</u>	<u>Description</u>
	21	C-611-W Sludge Lagoon
	22	C-611-Y Ovefflow Lagoon
	23	C-611-V Lagoon
	185	C-611-4 Horseshoe Lagoon
<b>WAG 14</b>		
<u>status</u> RFI	<u>SWMUS</u>	<u>Description</u>
	13	C-746-P Clean Scrapyard
	16	C-746-D Classified Scrapyard
<b>WAG 15</b>		
<u>status</u> RFI	<u>SWMUS</u>	<u>Description</u>
	24	C-750-D Underground Storage Tank
	97	C-601 Diesel Spill
	139	C-746-A1 Underground Storage Tank
	140	C-746-A2 Underground Storage Tank
<b>WAG 16</b>		
<u>status</u> RFI	<u>SWMUS</u>	<u>Description</u>
	78	C-420 PCB Spill Site
	137	C-746-A Inactive PCB Area
	153	C-331 PCB Soil Contamination (West)
	155	C-333 PCB Soil Contamination (West)
	156	C-310 PCB Soil Contamination (Westside)
	161	C-743-TO 1 Trailer Site (Soil Backfill)
	164	KPDES Outfall Ditch 017 (Soil Backfill)
<b>WAG 17*</b>		
<u>status</u> RFI	<u>SWMUS</u>	<u>Description</u>
	103	Concrete Rubble Pile
	104	Concrete Rubble Pile
	110-112	Concrete Rubble Piles
	114-128	Concrete Rubble Piles
	146-152	Concrete Rubble Piles
	184	Concrete Rubble Pile
	197	Concrete Rubble Pile
* WAG 17 will include investigation of the concrete rubble piles associated with AOCs 93, 105, 106, 107, 108, 129, and 175. Soils and sediments associated with these AOCs will be investigated with WAGs 18 and 25.		



<b>WAG 18</b>		
<u>status</u>	<u>SWMUs</u>	<u>Description</u>
RFI	62	C-375-S6 Southwest Ditch (KPDES 009)
	63	C-375-W7 Oil Skimmer Ditch (KPDES 008)
	65	Big Bayou Creek
	68	C-375-W8 Effluent Ditch (KPDES 015)
	69	C-375-W9 Effluent Ditch (KPDES 001)
	108	Concrete Rubble Pile
	129	Concrete Rubble Pile
	199	Big Bayou Creek Monitoring Station
	205	Eastern Portion of the Yellow Water Line
<b>WAG 19</b>		
<u>status</u>	<u>SWMUs</u>	<u>Description</u>
RFI	75	C-633 PCB Spill Site
	92	Fill Area for Dirt from the C-420 PCB Spill Site
	135	C-333 PCB Soil Contamination
	154	C-331 PCB Soil Contamination (Southeast)
	160	C-745 Cylinder Yard Spoils (PCB Soils)
	162	C-617-A Sanitary Water Line (Soil Backfill)
	163	C-304 Bldg/HVAC Piping System (Soil Backfill)
<b>WAG 20</b>		
<u>status</u>	<u>SWMUs</u>	<u>Description</u>
RFI	166	C-100 Trailer Complex Soil Contamination
	172	C-726 Sandblasting Facility
	195	Curlee Road Contaminated Soil Mounds
	200	Soil Contamination South of TSCA Waste Storage Facility
<b>WAG 21</b>		
<u>status</u>	<u>SWMUs</u>	<u>Description</u>
RFI	138	C-100 Southside Berm
	145	Residential/Inert Landfill Borrow Area
	158	Chilled Water System Leak Site
	176	C-331 RCW Leak Northwest Side
	177	C-331 Leak East Side
	180	Outdoor Firing Range (WKWMA)
	181	Outdoor Firing Range (PGDP)
<b>WAG 22</b>		
<u>status</u>	<u>SWMUS</u>	<u>Description</u>
CERCLA/AOC RI/FS	2	C-749 Uranium Burial Ground
	3	C-404 Low-Level Radioactive Waste Burial Ground
	7	C-747-A Burial Ground
	30	C-747-A Bum Area



<b>WAG 23</b>		
<u>Status</u>	<u>SWMUs</u>	<u>Description</u>
CERCLA/AOC	1**	C-747-C Oil Landfarm
RI/FS	32	C-728 Clean Waste Oil Tank
	33	C-728 Motor Cleaning Facility
	56	C-540-A PCB Staging Area
	57	C-541-A PCB Waste Staging Area
	74	C-340 PCB Transformer Spill Site
	79	C-611 PCB Spill Site
	80	C-540-A PCB Spill Site
	81	C-541 PCB Spill Site
<b>WAG 24</b>		
<u>Status</u>	<u>SWMUs</u>	<u>Description</u>
RFI	12	C-747-A UF <sub>4</sub> Drum Yard
	14	C-746-E Contaminated Scrap Yard
	15	C-746-C Scrap Yard
<b>WAG 25</b>		
<u>status</u>	<u>SWMUs</u>	<u>Description</u>
CERCLA/AOC	58	N-S Diversion Ditch (Outside)
RI/FS	59	N-S Diversion Ditch (Inside)
	60	C-375-E2 Effluent Ditch (KPDES 002)
	61	C-375-E5 Effluent Ditch (KPDES 013)
	64	Little Bayou Creek
	66	C-375-E3 Effluent Ditch (KPDES 010 Ditch)
	67	C-375-4 Effluent Ditch (C-340 Ditch)
	93, 105-107, 109, 113,175	Concrete Rubble Piles
	168	KPDES Outfall Ditch 012
	171	C-617-A Lagoons
<b>WAG 26</b>		
<u>status</u>	<u>AOCs</u>	<u>Description</u>
CERCLA/AOC	201	Northwest Plume
RI/FS	202	Northeast Plume
RI/FS	210	Southwest Plume



WAG 27		
<u>Status</u>	<u>SWMU/s</u>	<u>Description</u>
RFI	1 *** 91 196 209 211	C-747-C Oil Land Farm UF <sub>6</sub> Cylinder Drop Test Area C-746-A Septic System C-720 Compressor Shop Pit Sump <b>C-720 Trichloroethylene (TCE) Spill Site</b>
** *** <i>Investigation of SWMU 1 under WAG 23 will include PCB soils only. Investigation of SWMU 1 under WAG 27 will include investigation of all contaminated media except PCB-contaminated soils.</i>		

WAG 28		
<u>status</u>	<u>SWMUs</u>	<u>Description</u>
RFI	99 183 193 194 204	C-745 Kellogg Building Site McGraw Underground Storage Tank McGraw Southside Cylinder Yards McGraw Construction Facility (Southside) Dykes Road Historical Staging Area
WAG 29		
<u>status</u>	<u>SWMUS</u>	<u>Description</u>
RFI	38 102 159 178 179	C-615 Sewage Treatment Plant Plant Storm Sewer C-746-H3 Storage Pad C-724-A Paint Spray Booth Plant Sewer System
WAG 30		
<u>status</u>	<u>SWMUs</u>	<u>Description</u>
RFI	55 70 71 98 101 167 192 198	C-405 Incinerator C-333-A Vaporizer C-337-A Vaporizer C-400 Basement Sump C-340 Hydraulic System C-720 Whiteroom Sump C-710 Acid Interceptor Pit C-410-D Area Soil Contamination



## APPENDIX B

### RCRA FACILITY INVESTIGATION (RFI) WORKPLAN OUTLINE

#### I. RFI Workplan Requirements

The Permittee shall prepare a RCRA Facility Investigation (RFI) Workplan that meets the requirements of ~~Part~~ **II** of this document and the RFI Guidance, EPA-530/SW-89-031. This Workplan shall also include the development of the following plans, which shall be prepared concurrently:

- A. Project Management Plan. The Permittee shall prepare a Project Management Plan which will include a discussion of the technical approach, schedules and personnel. The Project Management Plan will also include a description of qualifications of personnel performing or directing the RFI, including contractor personnel. This plan shall also document the overall management approach to the RCRA Facility Investigation.
- B. Sampling and Analysis Plan(s). The Permittee shall prepare a plan to document all monitoring procedures: field sampling, sampling procedures, and sample analysis performed during the investigation to characterize the environmental setting, source, and releases of hazardous constituents, so ~~as~~ to ensure that all information and data are valid and properly documented. The Sampling Strategy and Procedures shall be in accordance with Characterization of Hazardous Waste Sites: A Methods Manual: Volume II: Available Sampling Methods, EPA-600/4-84-076, or EPA Region IV Engineering Support Branch's Standard Operating Procedure and Quality Assurance Manual (SOP). **Any** deviations from these references must be requested by the applicant and approved by the Director. The Sampling and Analysis Plan must specifically discuss the following unless the EPA-600/4-84-076 or SOP procedures are specifically referenced.

##### 1. Sampling Strategy

- a. Selecting appropriate sampling locations, depths, etc.;
- b. Obtaining all necessary ancillary data;
- C Determining conditions under which sampling should be conducted;
- d. Determining which media are to be sampled (e.g., groundwater, air, soil, sediment, subsurfaces gas);
- e. Determining which parameters are to be measured and where;
- f. Selecting the frequency of sampling and length of sampling period;
- g. Selecting the types of samples (e.g., composites vs. grabs) and number of samples to be collected.

##### 2. Sampling Procedures

- a. Documenting field sampling operations and procedures, including:
  - 1. Documentation of procedures for preparation of reagents or supplies which become an integral part of the sample (e.g., filters, preservatives, and absorbing reagents);

- ii. Procedures and forms for recording the exact location and specific considerations associated with sample acquisition;
    - iii. Documentation of specific sample preservation method;
    - iv. Calibration of field instruments;
    - v. Submission of field-biased blanks, where appropriate;
    - vi. Potential interferences present at the facility;
    - vii. Construction materials and techniques, associated with monitoring wells and piezometers;
    - viii. Field equipment listing and sampling containers;
    - ix. Sampling order; and
    - x. Decontamination procedures.
  - b. Selecting appropriate sample containers;
  - c. Sampling preservation; and
  - d. Chain-of-custody, including:
    - i. Standardized field tracking reporting forms to establish sample custody in the field prior to shipment; and
    - ii. Pre-prepared sample labels containing all information necessary for effective sample tracking.
- 3. Sample Analysis. Sample analysis shall be conducted in accordance with **SW-846: Test Methods for Evaluating Solid Waste - Physical/Chemical Methods** (third edition and/or most recent update). The sample analysis section of the Sampling and Analysis Plan shall specify the following:
  - a. Chain-of-custody procedures, including:
    - i. Identification of a responsible party to act as sampling custodian at the laboratory facility authorized to sign for incoming field samples, obtain documents of shipment, and verify the data entered onto the sample custody records;
    - ii. Provision for a laboratory sample custody log consisting of serially numbered standard lab-tracking report sheets; and
    - iii. Specification of laboratory sample custody procedures for sample handling, storage, and dispersment for analysis.
  - b. Sample storage;
  - c. Sample preparation methods;
  - d. Analytical Procedures, including:
    - i. Scope and application of the procedure;
    - ii. Sample matrix;
    - iii. Potential interferences;
    - iv. Precision and accuracy of the methodology; and
    - v. Method detection limits.

- e. Calibration procedures and frequency;
- f. Data reduction, validation, and reporting;
- g. Internal quality control checks, laboratory performance and systems audits and frequency, including:
  - i. Method blank(s);
  - ii. Laboratory control sample(s);
  - iii. Calibration check sample(s);
  - iv. Replicate sample(s);
  - v. Matrix-spiked sample(s);
  - vi. Control charts;
  - vii. Surrogate samples;
  - viii. Zero and span gases; and
  - ix. Reagent quality control checks.
- h. Preventive maintenance procedures and schedules;
- i. Corrective action (for laboratory problems); and
- j. Turn-around time.

C. Data Management Plan. The Permittee shall develop and initiate a Data Management Plan to document and track investigation data and results. This plan shall identify and set up data documentation materials and procedures, project file requirements, **and** project-related progress reporting procedures and documents. The plan shall also provide the format to be used to present the raw data and conclusions of the investigation.

1. Data Record. The data record shall include the following:

- a. Unique sample or field measurement code;
- b. Sampling or field measurement location and sample or measurement type;
- c. Sampling or field measurement raw data;
- d. Laboratory analysis ID number;
- e. Property or component measures; and
- f. Result of analysis (e.g., concentration).

2. Tabular Displays. The following data shall be presented in tabular displays:

- a. Unsorted (raw) data;
- b. Results for each medium, or for each constituent monitored;
- c. Data reduction for statistical analysis, **as** appropriate;
- d. Sorting of data by potential stratification factors (e.g., location, soil layer, topograph); and
- e. Summary data.

3. Graphical Displays. The following data shall be presented in graphical formats (e.g., bar graphs, line graphs, area or plan maps, isopleth plots, cross-sectional plots or transits, three dimensional graphs, etc.)

- a. Display sampling location and sampling grid;
- b. Indicate boundaries of sampling area, and area where more data are required;
- c. Display geographical extent of contamination;
- d. Illustrate change in concentration in relation to distances from the source, time, depth or other parameters; and
- e. Indicate features affecting inter-media transport and show potential receptors.

# 11. RCRA Facility Investigation (RFI) Requirements

The Permittee shall conduct those investigations necessary to: characterize the facility (Environmental Setting); define the source (Source Characterization); define the degree and extent of release of hazardous constituents (Contamination Characterization); and identify actual or potential receptors.

The investigations should result in data of adequate technical content and quality to support the development and evaluation of the corrective action plan if necessary. The information contained in a RCRA Part B permit application may be referenced **as** appropriate.

**All** sampling and analyses shall be conducted in accordance with the Sampling and Analysis Plan. **All** sampling locations shall be documented in a log and identified on a detailed site map.

**A. Environmental Setting.** The Permittee shall collect information to supplement and/or verify **Part B** information on the environmental setting at the facility. The Permittee shall characterize the following **as** they relate to identified sources, pathways, and areas of releases of hazardous constituents from Solid Waste Management **Units**.

1. **Hydrogeology.** The Permittee shall conduct a program to evaluate hydrogeologic conditions at the facility. This program shall provide the following information:

- a. **A** description of the regional and facility specific geologic and hydrogeologic characteristics affecting groundwater flow beneath the facility, including:
  - i. Regional and facility-specific stratigraphy: description of strata including strike and dip, identification of stratigraphic contacts;
  - ii. Structural geology: description of **local** and regional structural features (e.g., folding, faulting, tilting, jointing, etc.);
  - iii. Depositional history;
  - iv. Regional and facility-specific groundwater flow patterns;
  - v. Identification and characterization of **areas** and amounts of recharge and discharge.

b. **An** analysis of any topographic features that might influence the groundwater flow system.

**C** Based on field data, tests, and cores, a representative and accurate classification and description of the hydrogeologic units which may be **part** of

the migration pathways at the facility (i.e., the aquifers and any intervening saturated and unsaturated units), including:

- i. Hydraulic conductivity and porosity (total and effective);
    - ii. Lithology, grain size, sorting, degree of cementation;
    - iii. An interpretation of hydraulic interconnections between saturated zones; and
    - iv. The attenuation capacity and mechanisms of the natural earth materials (e.g., ion exchange capacity, organic carbon content, mineral content, etc.).
  - d. Based on data obtained from groundwater monitoring wells and piezometers installed upgradient and downgradient of the potential contaminant source, a representative description of water level or fluid pressure monitoring including:
    - i. Water-level contour and/or potentiometric maps;
    - ii. Hydrologic cross-sections showing vertical gradients;
    - iii. The flow system, including the vertical and horizontal components of flow; and
    - iv. Any temporal changes in hydraulic gradients, for example, due to tidal or seasonal influences.
  - e. A description of man-made influences that may affect the hydrology of the site, identifying:
    - i. Local water supply and production wells with an approximate schedule of pumping; and
    - ii. Man-made hydraulic structures (pipelines, french drains, ditches, etc.).
2. **Soils.** The Permittee shall conduct a program to characterize the soil and rock units above the water table in the vicinity of contaminant release(s). Such characterization may include, but not be limited to, the following types of information as appropriate:
  - a. Surface soil distribution;
  - b. Soil profile, including ASTM classification of soils;
  - c. Transects of soil stratigraphy;
  - d. Hydraulic conductivity (saturated and unsaturated);
  - e. Relative permeability;
  - f. Bulk density;
  - g. Porosity;
  - h. Soil sorption capacity;
  - i. Cation exchange capacity (CEC);
  - j. Soil organic content;
  - k. Soil pH;
  - l. Particle size distribution;
  - m. Depth of water table;

- n. Moisture content;
  - o. Effect of stratification on unsaturated flow;
  - p. Infiltration;
  - q. Evapotranspiration;
  - r. Storage capacity;
  - s. Vertical flow rate; and
  - t. Mineral content.
3. Surface Water and Sediment. The Permittee shall conduct a program to characterize the surface water bodies in the vicinity of the facility. Such characterization may include, but not be limited to, the following activities and information:
- a. Description of the temporal and permanent surface water bodies including:
    - i. For lakes and estuaries: location, elevation, surface area, inflow, outflow, depth, temperature stratification, and volume;
    - ii. For impoundments: location, elevation, surface area, depth, volume, freeboard, and construction and purpose;
    - iii. For streams, ditches, and channels: location, elevation, flow, velocity, depth, width, seasonal fluctuations, flooding tendencies (i.e., 100 year event), discharge point(s), and general contents;
    - iv. Drainage patterns; and
    - v. Evapotranspiration.
  - b. Description of the chemistry of the natural surface water and sediments. This includes determining the pH, total dissolved solids, total suspended solids, biological oxygen demand, alkalinity, conductivity, dissolved oxygen profiles, nutrients, chemical oxygen demand, total organic carbon, specific contaminant concentrations, etc.
  - c. Description of sediment characteristics including:
    - i. Deposition area;
    - ii. Thickness profile; and
    - iii. Physical and chemical parameters (e.g., grain size, density, organic carbon content, ion exchange capacity, pH, etc.).
4. Air. The Permittee shall provide information characterizing the climate in the vicinity of the facility. Such information may include, but not be limited to:
- a. A description of the following parameters:
    - i. Annual and monthly rainfall averages;
    - ii. Monthly temperature averages and extremes;
    - iii. Wind speed and direction;
    - iv. Relative humidity/dew point;

- v. Atmospheric pressure;
    - vi. Evaporation data;
    - vii. Development of inversions; and
    - viii. Climate extremes that have been known to occur in the vicinity of the facility, including frequency of occurrence (i.e., hurricanes).
  - b. A description of topographic and man-made features which affect air flow and emission patterns, including:
    - i. Ridges, hills, or mountain areas;
    - ii. Canyons or valleys;
    - iii. Surface water bodies (e.g., rivers, lakes, bays, etc.); and
    - iv. Buildings.
- B. Source Characterization. For those sources from which releases of hazardous constituents have been detected, the Permittee shall collect analytical data to completely characterize the wastes and the areas where wastes have been placed, to the degree that it is possible without undue safety risks, including: type, quantity, physical form, disposition (containment or nature of deposits), and facility characteristics affecting release (e.g., facility security, and engineering barriers). This shall include quantification of the following specific characteristics, at each source area:
- 1. Unit/Disposal Area Characteristics:
    - a. Location of unit/disposal area;
    - b. Type of unit/disposal area;
    - c. Design features;
    - d. Operating practices (past and present);
    - e. Period of operation;
    - f. Age of unit/disposal area;
    - g. General physical conditions; and
    - h. Method used to close the unit/disposal area.
  - 3. Waste Characteristics:
    - a. Type of wastes placed in the unit;
      - i. Hazardous classification (e.g., flammable, reactive, corrosive, oxidizing or reducing agent);
      - ii. Quantity; and
      - iii. Chemical composition.
    - b. Physical and chemical characteristics such as:
      - i. Physical form (solid, liquid, gas);
      - ii. Physical description (e.g., powder, oily sludge);
      - iii. Temperature;
      - iv. pH;

- v. General chemical class (e.g., acid, base, solvent);
- vi. Molecular weight;
- vii. Density;
- viii. Boiling point;
- ix. Viscosity;
- x. Solubility in water;
- xi. Cohesiveness of the waste; and
- xii. Vapor pressure.

- C Migration and dispersal characteristics of the waste such as:
- i. Sorption capability;
  - ii. Biodegradability, concentration, biotransformation;
  - iii. Photodegradation rates;
  - iv. Hydrolysis rates; and
  - v. Chemical transformations.

The Permittee shall document the procedures used in making the above determinations.

- C. Characterization of Releases of Hazardous Constituents. The Permittee shall collect analytical data on groundwater, soils, surface water, sediment, and subsurface gas contamination in the vicinity of the facility in accordance with the sampling and analysis plan **as** required above. These data shall be sufficient to define the extent, origin, direction, and rate of movement of contamination. Data shall include time and location of sampling, media sampled, concentrations found, conditions during sampling, and the identity of the individuals performing the sampling and analysis. The Permittee shall address the following types of contamination at the facility:

- 1. Groundwater Contamination. The Permittee shall conduct a groundwater investigation to characterize any plumes of contamination detected at the facility. This investigation shall at **a** minimum provide the following information:
  - a. A description of the horizontal and vertical extent of any plume(s) of hazardous constituents originating from or within the facility;
  - b. The horizontal and vertical direction of contamination movement;
  - c. The velocity of contaminant movement.
  - d. The horizontal and vertical concentration profiles of hazardous constituents in the plume(s);
  - e. **An** evaluation of factors influencing the plume movement; and
  - f. **An** extrapolation of future contaminant movement.

The Permittee shall document the procedures used in making the above determinations (e.g., well design, well construction, geophysics, modeling, etc.).

2. Soil Contamination. The Permittee shall conduct an investigation to characterize the contamination of the soil and rock units above the saturated zone in the vicinity of any contaminant release. The investigation **may** include the following information:
  - a. A description of the vertical and horizontal extent of the contamination;
  - b. A description of appropriate contaminant and soil chemical properties within the contaminant source area and plume. This may include contaminant solubility, speciation, absorption, leachability, exchange capacity, biodegradability, hydrolysis, photolysis, oxidation and other factors that might affect contaminant migration and transformation;
  - c. Specific contaminant concentrations;
  - d. The velocity and direction of contaminant movement; and
  - e. An extrapolation of future contaminant movement.
3. Surface Water and Sediment Contamination. The Permittee shall conduct a surface water investigation to characterize contamination in surface water bodies resulting from releases of hazardous constituents **at** the facility. The investigation may include, but not be limited to, the following information:
  - a. A description of the horizontal and vertical extent of any plume(s) originating from the facility, and the extent of contamination in underlying sediments;
  - b. The horizontal and vertical direction of contaminant movement;
  - c. The contaminant velocity;
  - d. An evaluation of the physical, biological, **and** chemical factors influencing contaminant movement;
  - e. An extrapolation of future contaminant movement; and
  - f. A description of the chemistry of the contaminated surface waters and sediments. This includes determining the pH, total dissolved solids, specific contaminant concentrations, etc.
4. Air Contamination. The Permittee shall conduct an investigation to characterize gaseous releases of hazardous constituents into the atmosphere or any structures or buildings. This investigation may provide the following information:
  - a. A description of the horizontal and vertical direction and velocity of contaminant movement;
  - b. The rate and amount of the release; and
  - c. The chemical and physical composition of the contaminant(s) release, including horizontal and vertical concentration profiles.

The Permittee shall document the procedures used in making the above determinations.

- D. Potential Receptors. The Permittee shall collect data describing the human populations and environmental systems that are susceptible to contaminant exposure from the facility.

Chemical analysis of biological samples and/or data on observable effects in ecosystems may also be obtained as appropriate. The following characteristics shall be identified:

1. Current local uses and planned future uses of groundwater:
  - a. Type of use (e.g., drinking water source: municipal or residential, agricultural, domestic/non-potable, and industrial); and
  - b. Location of groundwater users, to include withdrawal and discharge wells, within one mile of the impacted area.

The above information should also indicate the aquifer or hydrogeologic unit used and/or impacted for each item.

2. Current local uses and planned future uses of surface waters directly impacted by the facility:
  - a. Domestic and municipal (e.g., potable and lawn/gardening watering);
  - b. Recreational (e.g., swimming, fishing);
  - c. Agricultural;
  - d. Industrial; and
  - e. Environmental (e.g., fish and wildlife propagation).
3. Human use of or access to the facility and adjacent lands, including but not limited to:
  - a. Recreation;
  - b. Hunting;
  - c. Residential;
  - d. Commercial; and
  - e. Relationship between population locations and prevailing wind direction.
4. A general description of the biota in surface water bodies on ,adjacent to, or affected by the facility.
5. A general description of the ecology within the area adjacent to the facility.
6. A general demographic profile of the people who use or have access to the facility and adjacent land, including, but not limited to: age; sex; and sensitive subgroups.
7. A description of any known or documented endangered or threatened species near the facility.

**APPENDIX C**

**CORRECTIVE MEASURES STUDY (CMS)**

**OUTLINE**



## **APPENDIX C**

### **CORRECTIVE 'MEASURESSTUDY (CMS) OUTLINE**

- I. Identification and Development of the Corrective Measure Alternatives
  - A. Description of Current Situation
  - B. Establishment of Corrective Action Objectives
  - C. Screening of Corrective Measures Technologies
  - D. Identification of the Corrective Measure Alternatives
- II. Evaluation of the Corrective Measure Alternatives
  - A. Technical/Environmental/Human Health/Institutional
  - B. Cost Estimate
- III. Justification and Recommendation of the Corrective Measure or Measures
  - A. Technical
  - B. Environmental
  - C. Human Health
- IV. Reports
  - A. Draft
  - B. Final
  - C. Public Review and Final Selection of Corrective Measure



## APPENDIX C CORRECTIVE MEASURES STUDY (CMS)

- I. Identification and Development of the Corrective Measures Alternatives. Based on the results of the RCRA Facility Investigation and consideration of the identified potential corrective measure technologies, the Permittee shall identify, screen and develop the alternatives for removal, containment, treatment, and/or other remediation of the contamination based on the objectives established for the corrective action.
- A. Description of Current Situation. The Permittee shall submit an update to the information describing the current situation at the facility and the known nature and extent of the contamination as documented by the RCRA Facility Investigation (RFI) Report. The Permittee shall provide an update to information presented in the RFI regarding previous response activities and interim measures which have or are being implemented at the facility. The Permittee shall also make a facility-specific statement of the purpose for the response, based on the results of the RFI. The statement of purpose should identify the actual or potential exposure pathways that should be addressed by corrective measures.
- B. Establishment of Corrective Action Objectives. The Permittee shall propose facility-specific objectives for the corrective action. These objectives shall be based on public health and environmental criteria, information gathered during the RFI, EPA guidance, and the requirements of any applicable Federal Statutes. At a minimum, all corrective actions concerning groundwater releases from regulated units must be consistent with, and as stringent as, those required under 401 KAR 34:060, Section 11.
- C. Screening of Corrective Measure Technologies. The Permittee shall review the results of the RFI and assess the technologies which are applicable at the facility. The Permittee shall screen the corrective measure technologies to eliminate those that may prove infeasible to implement, that rely on technologies unlikely to perform satisfactorily or reliable, or that do not achieve the corrective measure objective within a reasonable time period. This screening process focuses on eliminating those technologies which have severe limitations for a given set of waste and site-specific conditions. The screening step may also eliminate technologies based on inherent technology limitations.

Site, waste, and technology characteristics which are used to screen inapplicable technologies are described in more detail below:

1. Site Characteristics. Site data should be reviewed to identify conditions that may limit or promote the use of certain technologies. Technologies whose use is clearly precluded by site characteristics should be eliminated from further consideration.
3. Waste Characteristics. Identification of waste characteristics that limit the effectiveness or feasibility of technologies is an important part of the screening process. Technologies clearly limited by these waste characteristics should be eliminated from consideration. Waste

characteristics particularly affect the feasibility of in-situ methods, direct treatment methods, and land disposal (off-site).

3. Technology Limitations. During the screening process, the level of technology development, performance record, and inherent construction, operation, and maintenance problems should be identified for each technology considered. Technologies that are unreliable, perform poorly, or are not fully demonstrated may be eliminated in the screening process. For example, certain treatment methods have been developed to a point where they can be implemented in the field without extensive technology transfer or development.

- D. Identification of the Corrective Measure Alternatives. The Permittee shall develop the Corrective Measure alternatives based on the corrective action objectives and analysis of potential corrective measure technologies. The Permittee shall rely on engineering practice to determine which of the previously identified technologies appear most suitable for the site. Technologies can be combined to form the overall corrective action alternatives. The alternatives developed should represent a workable number of option(s) that each appear to adequately address all site problems and corrective action objectives. Each alternative may consist of an individual technology or a combination of technologies. The Permittee shall document the reasons for excluding technologies.

- II. Evaluation of the Corrective Measure Alternatives. The Permittee shall describe each corrective measure alternative that passes through the initial screening and evaluate each corrective measure alternative and its components. The evaluation shall be based on technical, environmental, human health, and institutional concerns. The Permittee shall also develop cost estimates of each corrective measure.

- A. Technical/Environmental/Human Health/Institutional. The Permittee shall provide a description of each corrective measure alternative which includes but is not limited to the following: preliminary process flow sheets; preliminary sizing and type of construction for buildings and structures; and rough quantities of utilities required. The Permittee shall evaluate each alternative in the four following areas:

1. Technical. The Permittee shall evaluate each corrective measure alternative based on performance, reliability, implementability, and safety.

- a. The Permittee shall evaluate performance based on the effectiveness and useful life of the corrective measure:

- i. Effectiveness shall be evaluated in terms of the ability to perform intended functions, such as containment, diversion, removal, destruction, or treatment. The effectiveness of each corrective measure shall be determined either through design specifications or by performance evaluation. Any specific waste or site characteristics which could potentially impede effectiveness shall be considered. The evaluation should also consider the effectiveness of combinations of technologies; and

- ii. Useful life is defined as the length of time the level of desired effectiveness can be maintained. Most corrective measure technologies, with the exception of destruction, deteriorate with time. Often, deterioration can be slowed through proper system operation and maintenance, but the technology eventually may require replacement. Each corrective measure shall be evaluated in terms of the projected service lives of its component technologies. Resource availability in the future life of the technology, as well as appropriateness of the technologies, must be considered in estimating the useful life of the project.
- b. The Permittee shall provide information on the reliability of each corrective measure including their operation and maintenance requirements and their demonstrated reliability:
  - i. Operation and maintenance requirements include the frequency and complexity of necessary operation and maintenance. Technologies requiring frequent or complex operation and maintenance activities should be regarded as less reliable than technologies requiring little or straightforward operating and maintenance. The availability of labor and materials to meet these requirements shall also be considered; and
  - ii. Demonstrated and expected reliability is a way of measuring the **risk** and effect of failure. The Respondent should evaluate whether the technologies have been used effectively under analogous conditions; whether the combination of technologies have been used together effectively; whether failure of **any** one technology has an immediate impact on receptors; and whether the corrective measure has the flexibility to deal with uncontrollable changes at the site.
- c. The Permittee shall describe the implementability of each corrective measure including the relative ease of installation (constructability) and the time required to achieve a given level of response:
  - i. Constructability is determined by conditions both internal and external to the facility conditions and include such items **as** location of underground utilities, depth to water table, heterogeneity of subsurface materials, and location of the facility (i.e., remote location vs. a congested urban area). The Permittee shall evaluate what measures can be taken to facilitate construction under these conditions. External factors which affect implementation include the need for special permits or agreements, equipment availability, and the location of suitable off-site treatment or disposal facilities; and
  - ii. Time has two components that shall be addressed: the time it takes to implement a corrective measure and the time it takes to actually see beneficial results. Beneficial results are defined as the reduction of contaminants to some acceptable, pre-established level.
- d. The Permittee shall evaluate each corrective measure alternative with regard to safety. This evaluation shall include threats to the safety of nearby communities and environments as well

as those to workers during implementation. Factors to consider are fire, explosion, and exposure to hazardous substances.

2. Environmental. The Permittee shall perform an Environmental Assessment for each alternative. The Environmental Assessment shall focus on the facility conditions and pathways of contamination actually addressed by each alternative. The Environmental Assessment for each alternative will include, at a minimum, an evaluation of: the short- and long-term beneficial and adverse effects of the response alternative; any adverse effects on environmentally sensitive areas; and an analysis of measures to mitigate adverse effects.
  3. Human Health. The Permittee shall assess each alternative in terms of the extent to which it mitigates short- and long-term potential exposure to any residual contamination and protects human health both during and after implementation of the corrective measure. The assessment will describe the concentrations and characteristics of the contaminants' on-site, potential exposure routes, and potentially affected population. Each alternative will be evaluated to determine the level of exposure to contaminants and the reduction over time. For management of mitigation measures, the relative reduction of impact will be determined by comparing residual levels of each alternative with existing criteria, standards, or guidelines acceptable to the Division.
  4. Institutional. The Permittee shall assess relevant institutional needs for each alternative. Specifically, the effects of Federal, state, and local environmental and public health standards, regulations, guidance, advisories, ordinances, or community relations on the design, operation, and timing of each alternative. If the selected remedy is capping and closure in place, a notation must be made in the land deed.
- B. Cost Estimate. The Permittee shall develop an estimate of the cost of each corrective measure alternative (and for each phase or segment of the alternative). The cost estimate shall include both capital and operation and maintenance costs.
1. Capital costs consist of direct (construction) and indirect (non-construction and overhead) costs.
    - a. Direct capital costs include:
      - i. Construction Costs. Costs of materials, labor (including fringe benefits and worker's compensation), and equipment required to install the corrective measure.
      - ii. Equipment Costs. Costs of treatment, containment, disposal, and/or service equipment necessary to implement the action; these materials remain until the corrective action is complete;
      - iii. Land and Site-Development Costs. Expenses associated with purchase of land and development of existing property; and
      - iv. Buildings and Services Costs. Costs of process and non-process buildings, utility connections, purchased services, and disposal costs.
    - b. Indirect capital costs include:
      - i. Engineering Expenses. Costs of administration, design, construction supervision, drafting, and testing of corrective measure alternatives;

- ii. Legal Fees and License or Permit Costs. Administrative and technical costs necessary to obtain licenses and permits for installation and operation;
- iii. Land and Site Development Costs. Expenses associated with purchase of land and development of existing property; and
- iv. Buildings and Services Costs. Cost of process and non-process buildings, utility connections, purchased services, and disposal costs.

b. Indirect capital costs include:

- i. Engineering Expenses. Costs of administration, design, construction supervision, drafting, and testing of corrective measure alternatives;
- ii. Legal Fees and License or Permit Costs. Administrative and technical costs necessary to obtain licenses and permits for installation and operation;
- iii. Startup and Shakedown Costs. Costs incurred during corrective measure startup; and
- iv. Contingency Allowances. Funds to cover costs resulting from unforeseen circumstances, such as adverse weather conditions, strikes, and inadequate facility characterization.

2. Operation and maintenance costs are post-constructive costs necessary to ensure continued effectiveness of a corrective measure. The Permittee shall consider the following operation and maintenance cost components:

- a. Operating labor costs. Wages, **salaries, training,** overhead, and fringe benefits associated with the labor needed for post-closure operations;
- b. Maintenance materials and labor costs. Costs for labor, **parts,** and other resources required for routine maintenance of facilities and equipment;
- c. Auxiliary materials and energy. Costs of such items as chemicals and electricity for treatment plant operations, water and sewer service, and fuel;
- d. Purchased services. Sampling costs, laboratory fees, and professional fees for which the need can be predicted;
- e. Disposal and treatment costs. Costs of transporting, treating, and disposing of waste materials, such as treatment plant residues, generated during operations;
- f. Administrative costs. Costs associated with administration of corrective measure operation and maintenance not included under other categories;
- g. Insurance, taxes, and licensing costs. Costs of such items as liability and sudden accident insurance; real estate taxes on purchased land or right-of-way; licensing fees for certain technologies; and permit renewal and reporting costs;
- h. Maintenance reserve and contingency funds. Annual payments into escrow funds to cover (1) costs of anticipated replacement or rebuilding of equipment and (2) any large unanticipated operation and maintenance costs; and
- i. Other costs. Items that do not fit any of the above categories.

III. Justification and Recommendation of the Corrective Measure or Measures. The Permittee shall justify and recommend a corrective measure alternative using technical, human health, and environmental criteria. This recommendation shall include *summary* tables which allow the alternative or alternatives to be understood easily. Tradeoffs among health **risks**, environmental effects, and other pertinent factors shall be highlighted. The Director will select the corrective measure alternative or alternatives to be

implemented based on the results obtained from work completed under Sections II and III. At a minimum, the following criteria will be used to justify the final corrective measure or measures.

A. Technical

1. Performance. Corrective measure(s) which are most effective at performing their intended functions and maintaining the performance over extended periods of time will be given preference;
2. Reliability. Corrective measure(s) which do not require frequent or complex operation and maintenance activities and that have proved effective under waste and facility conditions similar to those anticipated will be given preference;
3. Implementability. Corrective measure(s) which can be constructed and operated to reduce levels of contamination to attain or exceed applicable standards in the shortest period of time will be preferred; and
4. Safety. Corrective measure(s) which pose the least threat to the safety of nearby residents and the environment as well as workers during implementation will be preferred.

B. Human Health. The corrective measure(s) must comply with existing Kentucky criteria, standards, or guidelines for the protection of human health. Corrective measures which provide the minimum level of exposure to contaminants and the maximum reduction in exposure with time are preferred.

C. Environmental. The corrective measure(s) posing the least adverse impact (or greatest improvement) over the shortest period of time on the environment will be favored.

IV. Reports. The Permittee shall prepare a Corrective Measure Study Report presenting the results obtained from Section 1 through III and recommending a corrective measure alternative. Copies of the preliminary report shall be provided by the Permittee to the Director for review and approval.

A. Draft. The Report shall at a minimum include:

1. A description of the facility;
  - a. Site topographic map and preliminary layouts.
2. A summary of the corrective measure(s) and rationale for selection;
  - a. Description of the corrective measure(s) and rationale for selection;
  - b. Performance expectations;
  - c. Preliminary design criteria and rationale;
  - d. General operation and maintenance requirements; and
  - e. Long-term monitoring requirements.
3. A summary of the RCRA Facility Investigation and impact on the selected corrective measure(s);
  - a. Field studies (groundwater, surface water, soil, air); and
  - b. Laboratory studies (bench scale, pick scale).
4. Design and implementation precautions;
  - a. Special technical problems;
  - b. Additional engineering data required;

- c. Permits and regulatory requirements;
  - d. Access, easements, right-of-way;
  - e. Health and safety requirements; and
  - f. Community relations activities.
5. Cost estimates and schedules;
- a. Capitol cost estimate;
  - b. Operation and maintenance cost estimate; and
  - c. Project schedule (design, construction, operation).

Copies of the draft shall be provided by the Permittee to the Director.

Final. The Permittee shall finalize the Corrective Measure Study Report incorporating comments received from the Division on the Draft Corrective Measure Study Report. The report shall become final upon approval by the Director.

Public Review and Final Selection of Corrective Measures. Upon receipt of the Final Corrective Measure Study Report, the Division shall announce its availability to the public for review and comment. At the end of the comment period, the Director shall review the comments and then inform the Permittee of the **final** decision **as** to the approved Corrective Measures to be implemented.



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## **APPENDIX D**

### **SCHEDULE OF COMPLIANCE**



## APPENDIX D

### SCHEDULE OF COMPLIANCE

Schedule of Compliance	Due Date
Notification of newly identified SWMUs and AOCs Conditions IV.B. 1 and IV.B.2	Within fifteen (15) calendar <b>days</b> of discovery
<b>SWMU Assessment Report</b> Condition IV.B.3	Within ninety (90) calendar days of notification
Notification for newly discovered releases at previously identified SWMUs and AOCs Condition IV.C. 1	Within fifteen ( <b>15</b> ) calendar days of discovery
RFI Workplan for SWMU(s) identified in Appendix A-1 Condition IV.D. 1.a	In accordance with the schedule of Appendix A-4
RFI Workplan for SWMU(s) and AOC(s) identified under Condition II.B.4 Conditions IV.C.2 and IV.D. 1.b	Within one hundred and eighty (180) calendar days after receipt of notification by the Director which SWMUs or AOCs require <b>an</b> RFI
<b>RFI Progress Reports</b> Condition IV.D.3.a	Quarterly, beginning ninety (90) calendar <b>days</b> from the <b>start</b> date specified by the Director*
Draft <b>RFI Report</b> Condition IV.D.3.b	In accordance with the approved RFI Workplan
Final <b>RFI Report</b> Condition IV.D.3.b	Within sixty (60) calendar days after receipt of the Division's comments on <b>the draft RFI report</b>
Interim Measures Workplan Condition IV.E. 1.a	Within <del>ninety</del> (90) calendar <b>days</b> of notification <b>by</b> the Director
Interim Measures Progress <b>Reports</b> Condition IV.E.3.a	Quarterly, beginning 90 <b>days</b> from start date specified by the Director**
Interim Measure <b>Report</b> Condition IV.E.3.b	Within ninety (90) calendar <b>days</b> of completion
CMS Plan Condition IV.F. 1.a	Within one hundred and eighty (180) calendar <b>days</b> of notification by the Director that a CMS is needed
Draft CMS <b>Report</b> Condition IV.F.3.a	In accordance with the schedule defined in the approved CMS plan
Final CMS <b>Report</b>	Within <del>sixty</del> (60) calendar <b>days</b> of the Director's



Schedule of Compliance	Due Date
Condition IV.F.3.a	comments on draft CMS report
Imminent Hazard Report Conditions N.I.1 and IV.I.2	Oral within <b>24</b> hours; written within <del>fifteen</del> <b>(15)</b> calendar days
Waste Minimization Certification Condition III	Annually <del>from</del> effective date of permit
Vent Monitoring/Inspection Scheduled and Procedures Attachment III; Condition H.II.C	Within 30 calendar days prior to anticipated process start-up
Vent Emissions Non-Compliance and Unrepaired Equipment Leak Reports Attachment III; Conditions <del>H.II.D.4</del> and H.III.C.6	Semi-annually beginning <del>six</del> <b>(6)</b> months after the effective date of the permit

The above reports must be signed and certified in accordance with **401 KAR 38:070**, Section 7.

- \* This applies to Workplan execution that requires more ~~than~~ one hundred eighty **(180)** calendar days.
- \*\* This applies to Workplan execution that requires more than one year.



## **APPENDIX E**

### **MODIFICATION OF THE CORRECTIVE ACTION SCHEDULE OF COMPLIANCE**



## **APPENDIX E**

### **MODIFICATION OF THE CORRECTIVE ACTION SCHEDULE OF COMPLIANCE**

- I. If at any time the Director determines that modification of the Corrective Action Schedule of Compliance is necessary, the Director may initiate a modification to the Schedule of Compliance according to this procedure. If the Director initiates a modification, he shall:
  - A. Notify the Permittee in writing of the proposed modification and the date by which comments on the proposed modification must be received; and
  - B. Publish a notice of the proposed modification in a locally distributed newspaper, mail a notice to all persons on the facility mailing list, and Place a notice in the facility's information repository (i.e., a central source of all pertinent documents concerning the remedial action, usually maintained at the facility or some other public place, such as a public library, that is accessible to the public) if one is required.
    1. If the Director receives no written comment on the proposed modification, the modification shall become effective five (5) calendar days after the close of the comment period.
    2. If the Director receives written comment on the proposed modification, the Director shall make a final determination concerning the modification after the end of the comment period.
  - C. Notify the Permittee in writing of the final decision.
    1. If no written comment was received, the Director shall notify individuals on the facility mailing list in writing that the modification has become effective and shall place a copy of the modified Corrective Action Schedule of Compliance in the information repository, if a repository is required for the facility.
    2. If written comment was received, the Director shall provide notice of the final modification decision in a locally distributed newspaper and place a copy of the modified Corrective Action Schedule of Compliance in the information repository, if a repository is required for the facility.
- II. Modifications that are initiated and finalized by the Director according to this procedure shall not be subject to administrative appeal.
- III. Modifications to the Corrective Action Schedule of Compliance do not constitute a reissuance of the permit.



## **APPENDIX F**

### **WASTE MINIMIZATION OBJECTIVES**



## APPENDIX F

### WASTE MINIMIZATION OBJECTIVES

The Waste Minimization Program shall include the following elements:

A. Top Management Support

1. Dated and signed policy describing management support for waste minimization and for implementation of a waste minimization plan.
2. Description of employee awareness and training programs designed to involve employees in waste minimization planning and implementation to the maximum **extent** feasible.
3. Description of how a waste minimization plan has been incorporated into management practices so as to ensure ongoing efforts with respect to product design, capital planning, production operations, and maintenance.

B. Characterization of Waste Generation

1. Identification of types, amounts, and hazardous constituents of waste streams, with the source and date of generation.

C. Periodic Waste Minimization Assessments

1. Identification of all points in a process where materials, can be prevented from becoming a waste, or can be recycled.
2. Identification of potential waste reduction and recycling techniques applicable to each waste, with a cost estimate for capital investment and implementation.
3. Description of technically and economically practical waste reduction/recycling options to be implemented, and a planned schedule for implementation.
4. Specific performance goals, preferably quantitative, for the source reduction of **waste** by stream. Whenever possible, goals should be stated as weight of waste generated per standard unit of production, as defined by the generator.

D. Cost Allocation System

1. Identification of waste management costs for each waste, factoring in liability, transportation, recordkeeping, personnel, pollution control, treatment, disposal, compliance and oversight costs to the extent feasible.
2. Description of how departments are held accountable for the wastes they generate.

3. Comparison of waste management costs with costs of potential reduction and recycling techniques applicable to each waste.

E. Technology Transfer

1. Description of efforts to seek **and** exchange technical information on waste minimization **from** other parts of the **company**, other firms, trade associations, technical assistance programs, and professional consultants.

F. Program Evaluation

1. Description of types and amounts of hazardous waste reduced or recycled.
2. Analysis and quantification of progress made relative to each performance goal established and each reduction technique to be implemented.
3. Explanation ~~and~~ documentation of reduction efforts completed **or** in progress before development of the waste minimization **plan**.
4. Explanation **and** documentation regarding impediments to hazardous waste reduction specific to the individual facility.

## REFERENCES

"Draft Guidance to Hazardous Waste Generators on the Elements of a Waste Minimization Program," 54 FR 25056, **June 12, 1989**.

"Waste Minimization Opportunity Assessment Manual," EPA/625/7-88/003, July 1988.